

Strategic Alliance and Submarket Choices of Commercial Real Estate Investors – A Multinomial Approach

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Abstract

This study explores the strategic entry modes of overseas investors in commercial real estate market, specifically, whether if the market entry and partnering decisions of foreign investors get affected by the participation of peer investors. Existing literature in international business suggests investors tend to follow the choice of their peer group so that to acquire the local information through peer business network. As an alternative, aligning with partner benefits foreign investors on accessing local information via partner(s), also sharing the cost and risk; however, research from corporate finance and international investment addresses that one need to balance this benefit with partner's potential hazard of opportunism. This study conducts multinomial logit model with commercial property transaction data in London, Manchester, Midland and Yorkshire from 2001 to 2015. Empirical results confirm the different choices among foreign and UK investors on submarkets, and show evidence that foreign investors incline to conduct investment independently instead of partnering with a UK investor when a larger group of peers that share similar socio-economic backgrounds had participated in previous 3 years; this supports the hypothesis that investors adjust their investment strategy *ex ante* when they anticipate the potential agency issue and moral hazard in partnership in foreign market where information access is limited. The effects, however, varies between London and non-London area in terms of submarket selection, where there is subtle result in non-London area reflecting pure foreign consortia may stay within fringe of cities while UK-foreign consortia incline to explore peripheral markets; on the other hand, UK-foreign consortia have broader market horizon in London sample and have higher probability on exploring the submarkets outside “core” (West End, City and Canary Wharf) area. This study provides insights on asset allocation and market entry strategies of commercial property investors by bridging international business theories with real estate investment. It also leads to a further discussion on the composition of investment group and its influence on the liquidity and market cycle of commercial real estate market.

Keywords: Strategic alliance; peer effect; market entry; commercial property investment; multinomial logit model

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1. Introduction

The nature of commercial property market, namely transparent information transmission and domestic-domain local business network, makes the decision-making of foreign investors rather challenging. Investors that enter into a new market have to come across the barriers of acquiring information and accessing business resources; hence, their business actions are inevitably bounded by the limited resources or “experiences” they are able to access, referred as “home bias”. To reduce the transaction cost, foreign investors may choose the market where information is more transparent, and assets are easily accessible. Meanwhile, an interesting phenomenon discussed by international business (IB as follow) studies indicate that, new-entry overseas investors are influenced by existing investors in the market who share same background, as new entrants can take advantage of the market resource from establish business network, or get a peer group as “benchmark” that recognise the judgement of each other. This leads to deviations on target market selections and market entry strategies of non-local investors’ *ex ante* investment decisions, where they show distinct preferences on specific geographic submarkets or industry sector from the local. If the heterogeneous preferences drive investors into different sub markets segments, the distribution of investor types in the whole market could be distorted. From the institutional angle, where investor diversity is essential to market pricing mechanism, a skewed investor distribution would affect market depth as well as market nature.

The bias can be overcome if one liaises (joint-venture, or management outsource etc.) with participants who already possess information and managerial advantages in the market, so that to absorb the location-bounded advantage (LSA) during the cooperation process. However, studies on conflict of interests highlight the existence of agency cost and opportunism hazards due to the separation between ownership and management among stakeholders. Further, frictions on cultural and organisational backgrounds also constrain the cooperation among partners. Investors hence need to balance between strategic alliance benefit and agency cost, and it still remains arguable whether if the liaisons effectively help investors “act as local” than exploit host market independently.

Therefore, this study intends to discuss the divergent target market selections and market-entry strategies among commercial real estate investors with heterogeneous in knowledge exposures. In particular, the study focuses on the questions below:

- Do overseas investors, who’s assumed to have restricted access to host market resource and information, choose different target markets from local investors? Can strategic alliance effectively broaden the horizon of overseas investors?
- How would peer group and submarket environment affect the strategic alliance of overseas investors?

Multilevel logit models testify the above questions with 2001-2015 UK commercial real estate market transaction records in London, Manchester, Midland and Yorkshire. The accomplished results reveal that foreign investors do have different preferences on submarkets from UK investors, while UK-foreign consortia show stronger preference on suburban market than “pure” foreign groups. Further, tests on foreign investors’ peer groups show that, investors prefer to conduct independent investment rather than establishing international partnership when the local area has a larger group of peer investors who share resembling socio-economic background; nonetheless, the other peer group proxies, especially the widely adopted “home peers” proxy, do not show significant effect in current sample. The tests particularly control the role of broker who’s generally assumed to transmit the market information; empirical results also explore the different roles between broker and partner and varied demand towards brokerage when investors have different partnering strategies. Moreover, the results find the divergence influences of London market and non-London market on the role of peer group: in non-London market where transaction volume is thin, and market environment is assumed to be more opaque, peer group provide the essential market resource for foreign investors; whereas in London market, where resource is distributed with better balance, peer group act as a “bridge” facilitating the cooperation between foreign and UK investors.

The results contribute to both real estate studies and international business studies. Although the idea of investors’ mimicry and market-entry strategy have been discussed in international business and industrial organisational research, due to the restriction on data availability, a majority of studies are based on corporate-level performance in manufacture industries, whereas this study contributes the deal-level evidence in investment sector. On the other hand, as international real estate investment thrives, designing proper strategies for overseas market exploration is essential for investors with global investment vision. This study extent the discussion on “home bias” and discuss investors choices on different strategies to mitigate home bias. The findings are expected to have implications to new investors on market-entry strategy design, as well as to existing investors on understanding partnership. What’s more, as investors’ choices is “limited optimal” given the market mechanism of commercial property, the results also reflect the importance of investor group composition, calling for a further exploration on the influence of investor composition on institutional theories.

2. Literature Review

2.1. Mimicry Behaviour under Asymmetry

Non-local investors are generally assumed to be less advantaged than host-market investors in studies of economic geographic, behavioural economics, and international business. Two main reasons are stated: non-local investors lack adequate accessibility to local market resources and business networks; limited market information also restricts the judgement of non-local investors. The “liability of foreignness” in IB studies exemplifies the “complexity, uncertainty, discrimination” foreign firms need to tackle with in newly entered host market (Arregle, Beamish and Hebert, 2009; Goerzen, Asmussen and Nielsen, 2013). The parallel concept of “home bias” in real estate studies also mentions the higher searching cost paid by non-local investors in order to get local information. (Ling, Naranjo and Petrova, 2016). With the restricted available resources, foreign investors may result in rather different choices from domestic investors – the effect can be seen from a comparison of two studies: an interview study of MacCowan and Orr (2008) confirmed the possible less “rational decisions” made by institutional investors: “in submarkets where less information is available” investors have greater tendency to rely on “personal judgement, over-react to current information”, and “information gathered through personal contacts”. However, in another questionnaire-based study, when equipped with “full” options on assets without any accessing barrier, the preferences of investors are highly similar (Jackson and Orr, 2011, 2016).

When discussing the decision-making in new market entry, the mimicry behaviour or “bandwagon effect” in IB studies provide helpful insights. Many studies have shown that when foreign firms enter into host market but lack of local advantage on information, social or market resources, they tend to take existing firms in the market as reference group and follow their behaviour. (Erramilli and Rao, 1990; Haunschild and Miner, 1997; Guillén, 2002, 2003 among others). Resource-based theory explains it as “knowledge spillover”, which means new-entry investors can take advantage of the resource and business network established by the peers that has established business in the market. It also leads to further discussion about which reference group can effectively circulate the market resources. Investor group from same country or region, referred as “home peers”, is commonly used as information and market resources are easier to spread among home groups; previous studies have also shown that new-entry investors would follow the target market choice (Guillén, 2002; Chang and Park, 2005) and FDI corporate strategies (Guillén, 2003). Meanwhile, Haunschild and Miner (1997) propose that investors may imitate the behaviours of social prominent group (“trait-based” imitation) and the attempts that eventually succeed (outcome-based imitation), which coincides the “ownership advantages” idea of Dunning (1993). However, Li and Yao (2010) find no significant evidence on the trait-based imitation; instead, they find that for a firm from a developing country, peer group from other developing countries are also reference group, as they share resembling economic development background. A third

dimension is from the idea of cultural distance (Hofstede, 2003). Investors from closer cultural distance share more resembling value and judgements, hence cultural-resembling group can also be reference for new-entry investors.

Some other studies question the rationality of the bandwagon effect, as the judgements under the biased reference group deviate investors from realising “true” preference. In this case, when non-local investors get involve with local business, the accumulated experiences should moderate the initially biased behaviour of non-local investors. Beldebos, Olffen and Zou (2011) investigate the differentiated bandwagon effects between first-entry firms and subsequent-entry firms; results show that for first-time entry firms, both total number of peers and number of resembling-size peers affect the entry decision, while for subsequent entry firms, only the total peer number show significant effects. Studies in real estate area such as Lambson, McQueen and Slade (2004) and Chinloy, Hardin and Wu (2014) address on the effect of one’s previous experience in the local market, but there is no significant support from empirical results.

2.2. Strategic Alliance Choices

Comparing to “learning-by-doing”, strategic alliance provides a “shortcut” for new-entry investors acquiring complementary resource or market information in host market. Both corporate finance and international business strategy shed light on the topic from different perspectives. Some studies use “strategic alliance” as a parallel term to joint venture referring to the alliance without injection of equity (Chan et al., 1997; Amici et al., 2013; Chen, King and Wen, 2015), while IB articles in mainly use this term for joint venture partnership thus distinguish from M&A and licencing (Verbeke, 2013, among others); Dacin, Hitt and Levitas (1997) include both equity and non-equity alliance in this term. As this study targets at the partner choice and local market knowledge access, and both definitions agree on the resource complement function of the alliance, the article hereby uses “strategic alliance” for both joint venture and the investment partnership with external investment manager.²

Previous literature illustrates the alliance incentives of investors from transaction cost theory, agency theory, resource-based theory and institutional theory (Hoskisson et al., 2000; Wright et al., 2005; Beamish and Lupton, 2016), and exemplifies the benefits of strategic alliance as:

First, sharing cost and risk of investment projects. Some studies explain this risk-sharing idea with “real option” concept, indicating that joint venture enables investors to preserve the opportunities on acquiring entire asset if it performs good in the future, or keep partial ownership otherwise. Balakrishnan and Koza (1993) compare joint venture with acquisition and leasing by indicating that

² A negligible number of acquisitions occurred in hospitality sector in RCA data defined as JV, but hospitality is excluded in the sample for following empirical test thus the definition and empirical work do not conflict.

joint ventures allow investors to keep partial ownership of the firm/asset, hence hold the option of changing the contract state (rescinding by JV termination). Results based on JV and M&A announcements among US public firms in 1974-1977 support their hypothesis that joint ventures can “pool complementary asset without a terminal sale” thus is preferred than M&A. Reuer and Koza (2000) testify this hypothesis within the joint ventures partly held by parent firms. They explain the venturing incentive as reducing both “*ex post* transaction costs” on potential integration if buyer decide to acquire the vehicle, and “*ex ante* uncertainties” if buyer cannot capture the true value of the target at the time of transaction due to information asymmetry. Their event study results also capture the abnormal return among the JVs that in the same industry as parent firms, implying that partnerships help reducing information asymmetry thus are favoured by stock market. Brouther, Brouther and Werner (2008) also adopt the real option intuition and detect firms’ satisfaction after choosing the entry mode. With the sample of European market, their 2-stage model shows that, firms facing high demand uncertainties (measured by market size and growth potential) and restricted strategic flexibilities (firm’s general international investment and experiences in specific market) tend to choose joint ventures over wholly-owned subsidiaries; furthermore, firms that choose the “correct” modes (i.e. predicted values match real choices) tend to have higher satisfactory score.

Second, enabling partners acquiring complementary resources. As two sides of one coin, transaction cost theory explains the cost reduction of acquiring market resources by alliance, while institutional theory emphasises the information asymmetry, and the barrier of acquiring local market resource, thus implies the benefits of entering into a partnership. In production and service industries, the resource could refer to R&D or market share etc. (Beamish and Lupton, 2016). Chen and Hannard (2004) suggest that in market where resource or technique is highly concentrated within domestic participants, new-entry firm is constrained by “hostage effect”, therefore entering JV partnership with a local partner would save new-entry firms cost on market information, and benefit them with the local reputation. Kumar and Park (2011) demonstrate the impact of partners’ reputation on the signalling effect of joint venture. By comparing the abnormal returns of high-quality firm and low-quality firms, they found that when a low-quality (high-quality) firm enters into a JV with high-quality (low-quality) partner, the abnormal return is higher (lower).³

Third, learning from partner and developing the investment/production capacities throughout the cooperation. Especially, partner from emerging market, who are generally assumed to be less

³ Though this article contributes to empirical evidence of information asymmetry, it lacks the explanation of the motivation why a “high-quality” firm would like to cooperate with a “low-quality firm” – this is even important if the “high-quality firm” is a local partner, who retains both location- and non-location-bounded advantages. A possible example in real estate investment is an investor from emerging country trying to enter a mature market, and partnering with a local “high-quality” partner; investor from emerging country might have capital advantage while lack of local advantage, which is a hazardous condition that local partner “entrenches” investment project with the market and managerial information advantages.

competitive in a developed (host) market, would learn from partners from developed market. (Kale and Anand, 2006) Besides, some pointed that alliance generate the alliance-specific advantage that benefit the venture hence both partners (Hamel, Doz and Prahalad, 1989; Verbeke, 2013).

However, there is still “dark side” of strategic alliance. As agency cost points that, sharing resources or imbalance obligation-ownership distribution will inevitably lead to conflicts of incentives thus trigger “free-riding” problem. Anderson and Jap (2005) has addressed the “dependence, exploitation and abuse” in a joint venture partnership. At the meantime, partner who anticipates the potential hazards will take the reaction *ex ante*, reflecting on the choice of taking up the strategic alliance partnership. A number of studies manage to derive the economic intuition by contingency claim models. (Neo, Rebello and Shrikhande, 2002; Mathews, 2006) Axelson, Stromberg and Weisbach (2009) structure a theoretical model to demonstrate the choice of a limited partner that abandoning the investment opportunity if anticipating general partner’s opportunism temptation. Moreover, the friction among partners can be triggered by different understandings towards target markets, or differences in cultural/ organisational elements (as shown by Hofstede’s cultural dimension) can also be the distraction of solidity of the alliance, further leading to the adjustment of firm’s business choice.

Inspiring insights as international business and corporate finance have contributed, the gaps among the literature are also worth-noting: international business research predominantly focus on manufactory industries that has “technical” value-adds, while research with broader view on all industries generally classifies investment firms in service industry, but rather scarce illustration on how the theories can apply to investment sector specifically. Meanwhile, though studies in corporate finance has shed light on interactions among partner, there is no such abundant discussions on how market information asymmetry affects firm’s strategy from an institutional point of view.⁴ However, evolution of investment institutions, specialised investment market and techniques require more in-depth discussion on investment sectors – take real estate investment in direct market as an example, incentives of real estate investors differ, where the demands to market knowledge vary. Holesapple, Ozawa and Olienyk (2002) exemplify different investment activities by a spectrum graph (Figure 1), and rank investors demands to market knowledge rise as investors get more management role on their assets.⁵ Nevertheless, one can see from the graph that local market knowledge is essential for at least all investors in direct market, implying the necessity of exploring investors’ strategic choices in order to acquire local market resource.

⁴ One example that has implications on this combined view includes Axelson et al. (2009), and follows Axelson et al. (2013) as empirical support. Among real estate literature, Freybote and Qian (2015) discuss the JV/M&A decision of REITs in different market environments.

⁵ The incentives also vary among activities i.e. development and hotel management have higher requirements for investors’ market knowledge than other commercial real estate investment.

Figure 2 demonstrates the alliance opportunities between foreign and host investment partner, and market resources by Verbeke (2013) 7-element model. It worth pointed that unlike production sector, actions in investment sector is highly homogeneous – especially for “passive” investors that looks for foreign portfolio investment only (Holsapple, Ozawa and Olienyk, 2006) – thus market information becomes a crucial element that change competition/cooperation states of foreign and host investors. Local real estate investors are generally assumed to be advanced in accessing local property market thus have wider investment choices esp. on targeting locations; also, investors that have established in local market has also get better connection in local business network and accumulated better reputation in the market so that to help attracting local tenants as well as financing in local market – these are the location-bounded firm-specific-advantages foreign firms are looking for. On the other hand, the non-location-bounded FSA for a foreign investor to form the alliance is not restricted within capital “advantage” – for local partner that seeks for global networking resources, foreign investors may also provide advanced investment technique (market-timing, portfolio construction etc.), business network from global/home market (international marketing and tenants), as well as international reputation (branding). The stability of the alliance hence also relies on the market information assessing, as well as the coordination of partner’s incentives: in the market with higher information asymmetry or higher uncertainty, foreign investors may choose to align with a local partner to access local investment opportunities, or attracting high-quality tenants thus guarantee more reliable cash flow; whereas if the local market has lower cost for foreign investors accessing investment opportunities, they may not have strong preference on partnering with local investors. Common wisdom in real estate study has agreed that market information is a crucial element for investors, where broker transmit information about investment opportunity between buyer and seller thus facilitate the transactions. (Baryla and Zumpano, 2009; Zumpano, Elder and Baryla, 1996; Devaney and Scofield, 2013) It is thus not surprised that literature on “home bias” explain the market barrier by information. Roles of partners indeed have overlap with that of broker. But one can see there is other elements investors need in order to establish investment, thus it worth a further discussion on the adoption of brokerage and partnership. As for the within-organisation conflicts among investors, Freybote, Gyamfi-Yeboah and Ziobrowski (2014) has discussed the asset disposal incentive of REITs via JV “vehicle”. Specifically, in real estate investment where firm’s alliance is usually individual-asset-base, investors may make the ex-ante adjustments i.e. target asset selection and entry mode choices instead of re-negotiation in the partnership.

To summarise it, although strategic alliance helps foreign investors mitigating market information barrier, distraction for cooperation still exists, and institutional elements also affect investor’s entry mode choices. The iconic institutional features of commercial property market are the asymmetry information system, and heterogeneous asset attributes, provoking the international alliance among investors.

Figure 1 Real Estate Activities Spectrum (Holesapple et al., 2002)

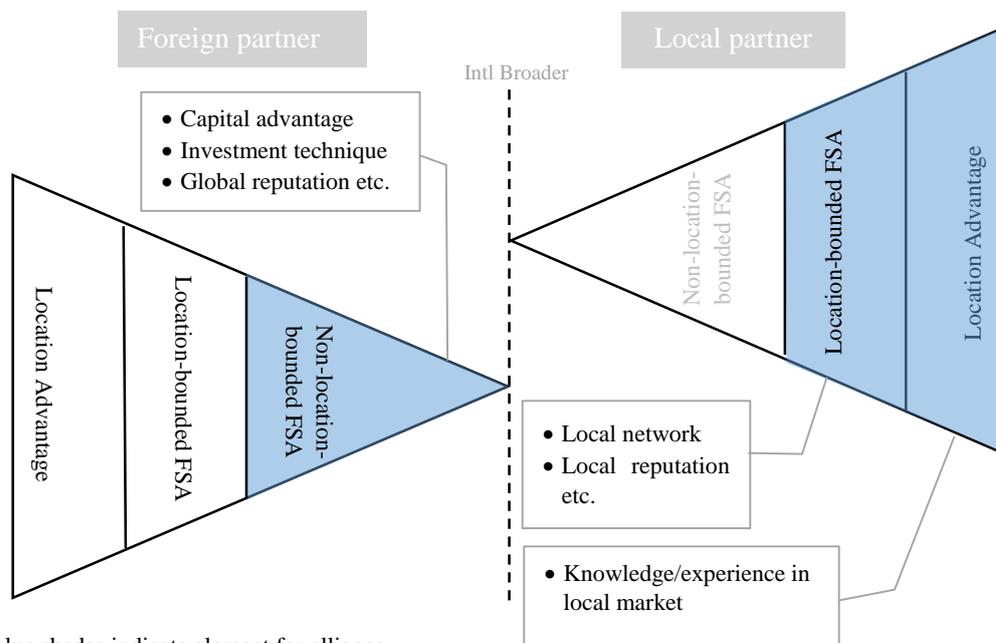
Real estate-related foreign investment

FPI (Passive)

1	Simple minority-share ownership in REIT or real estate corporation	
2		Minor-ownership of JV without asset management; opportunistic partner (GP) control.
3		
4	REIT or partnership, minor-major-ownership; external management	
5		Direct real estate ownership, REIT or partnership, majority ownership with asset management
6		
7	Property management, commercial property	Real estate development, construction etc.
8	Owning and operation a hotel	
9		
10		

FDI (Active)

Figure 2 Essential elements to form REI alliance



2.3. Evaluating Location in Stock Selection Process

A stream of studies discusses the decision-making process of commercial real estate investments. In the purchase decision model that Baum (2015) describes, before selecting suitable investment stock, the initial step is to justify the market selection by referring to market forecasts, which is usually reported by geographic submarket and industry sector. An implication one could derive from this is, location/submarket feature is a primary criterion when investors make the decision of market entry before evaluating the profitability of specific investment project. (Robertz and Henneberry, 2007; Jackson and Orr, 2011, 2016) But one might also notice that, given the functional zoning of submarket, the concept “submarket” combines geographic area and industry sectors, which means property submarket allocation varies among different industries, restricting investor’s location selection (i.e. in London investor can hardly find industrial property in area such as West End or City, but rather make a choice among suburban areas).

Research on property pricing try to take the submarket clustering into consideration. Regarding to the drawback that “plain” hedonic model takes all the element without priority, some studies adopt hierarchical modelling structure in order to enhance the modelling of investor’s decision or pricing. Nested logit model is used in housing research such as Börsch-Supan and Pitkin (1988), Fischer and Aufhauser (1988), Yates and MacKay (2006), and Frenkel, Bendit and Kaplan (2013), where most of the decision-tree setting take location/submarket as a high-hierarchy factor.⁶ Another alternative start from the location-clustering character of properties, and revise the hedonic model with multilevel model for pricing (Giuliano et al., 2010; Leishman et al., 2013; Crosby, Jackson and Orr, 2016) and submarket is used as high-level variable.

Therefore, both qualitative and quantitative studies have shed some light on the importance of location/submarket when investors evaluate the investment opportunity. However, there is limited discussion on how investors balance the choice of target market and investment strategy – Holsapple et al. (2006) conclude a “what—where—how” process framework for overseas real estate investors, while this study intends to bring more insights with empirical evidence.

3. Hypothesis Setting

⁶ Some of the articles like Börsch-Supan and Pitkin (1988), Fischer and Aufhauser (1988) follow the order of “Ownership (own/rent) – location (submarket categories) – characters of building (e.g. house/flat, number of bedrooms)”, whilst in the study of Yates and MacKay (2006), the HEV-guided model place house/flat before location and tenure choice; most studies state they have checked the validity of their structures by log-likelihood ratio or other extensive analysis methods. Nevertheless, location factor has never rank in the lowest level, which implies that location is still among the primary considerations. Additionally, given the different markets they detected in worldwide, the differences might be caught by institutional features of certain market.

To summarise existing literature, due to the less transparent nature of direct market, non-local investors get restricted by the limited accessible knowledge and information in host market, thus can realise in very different asset choices from local investors. UK investors, as “local”, are generally assumed to have advanced market access than non-local investors, hence the alliances with UK investors should enable foreign investors with a wider target market. Meanwhile, the partnering within two investors with same market knowledge exposure may be triggered by the cost/risk sharing incentive.

Hypothesis 1: Target Market Selection

H1-1: Overseas investors, who is assumed to be restricted on accessing resources of host property market, tend to choose “trophy markets” i.e. the major city area.

H1-2: Target market of a foreign investor can be broader when partnering with a local investor who’s providing local resources and connections.

H1-3: Consortia between UK investors or foreign investors are for cost/risk sharing purpose thus more sensitive to property characters (size, age etc.).

Peer group in the market acts as an important intermediate to provide local market resources as well as a reference for non-local investors. If non-local investors tend to stay in the market where the cost of resource sorting is lower, and easily recognised by other investors, market with larger peer group is favoured. Especially, with the local business network that existing peers has established, investors do not have to rely on the location-bounded firm-specific advantage of a local partner, but conduct the investment independently. Moreover, with the present of peer group, restriction of submarket should be mitigated. These lead to the hypothesis about peer effects.

Hypothesis 2: Influence of Peer Group

H2-1: As the scale of peer group increases, foreign investors are more confident to conduct investment independently i.e. single investor has higher probability than other two strategies.

H2-2: Assume that investors choice is affected by peer effect, the preference on submarket should diminish after controlling peer’s effect.

The role of broker and strategic alliance partner are different as broker transmit asset information while partner provide local business network. Common wisdom about investment market explains the “home bias” with information searching cost, hence asset is “achievable” with adequate information provided by broker. The research argues that real estate industry requires the local resource which can be provided by partner but not essentially achievable by broker. Thus the hypotheses on the roles between broker and partner are shown below.

Hypothesis 3: Broker vs Partner

H3-1: If partnership acts as the market information, which is the main role of broker, there is expected negative estimate of broker on partnering choices.

H3-2: If assume peers provide the market information to proceeding foreign investors, effect of broker' therefore should be negative.

4. Data and Methodology

4.1. Data

The study employs RCA transaction records in London, Manchester, Midland and Yorkshire, with the time span from 2001 to 2015. Unique-transaction records is reshaped into unique-investor records in order to define the character of investors so that to measure investor's choices as well as count of peers.⁷ Regarding to the discussion on the cluster between submarket and industry sector, the study selects "traditional" investment sectors in UK, which are office, retail and industrial properties. After eliminating records that is non-investment purpose or lack of required variable information, 5166 records are finally used as sample for regression.⁸ It's worth noting that in the sample adopted, over a half of the transactions occur in London market, where both investor composition and property characters of London stand out from other regions—as one of the "global cities", London has much divergent institutional environment than others. Some undisclosed empirical results that pool the whole dataset together shows some misleading results that has been strongly represented by London subset. Therefore, the study split the sample into London and non-London area in order to see if peer effect and submarket targeting behaviours of investors show any difference; the comparison implies the influence of institutional environment. From Table 1 and Table 2, one can see that transacted properties in London have higher age and larger size on average. Comparing Figure 4 with Figure 3, investor group is tremendously larger than non-London area and the distribution is different.

Dependent variables for following empirical tests are the combination between buyer's nationalities (UK/foreign) and the partnering choices thus come with five categories: single UK/foreign investor, and consortia with both-UK investors, UK-foreign investors, and both foreign investors. Main explanatory variables are submarket categories tiers and peer count of investors. Submarket sector in non-London area is based on RCA market definition hierarchy. Within the metro that are main UK

⁷ For example, it is hard to define the nationality of investor with one acquisition conduct by a UK investor partnering with foreign investor; rather, the dataset converts it into two records, with the same property information and same cooperate form of "UK-foreign consortia", but different investors.

⁸ However, peer count is based on full buyer data that has valid country information. Full dataset contains 15,606 records, with 6193 conducted by non-UK investors. When counting the peer numbers, the study also excludes those record with typical offshore tax heavens and those buyers with unclear nationality.

cities (i.e. Birmingham, Liverpool, Manchester, Leeds, Newcastle and Sheffield in current dataset), the city region is defined as “city core” submarket, while some satellite area surrounding the major cities are defined as “city fringe”. Among the area that are not major cities, the sample select those towns or cities that rank within top 100 town in real estate activity Gross Value Added (GVA) in 2001-2015 time window (ONS data) and define as “region core” submarket, while the other towns are defined as “suburban” area. In London subsample, the submarket is defined by postcode zones: the study follows RCA’s definition on West End, City and Canary Wharf (based on postcode) and conclude it as “core” market, for the other area, the study adopted respective postcodes in inner-London boroughs and outer-London boroughs from Greater London Authority. Distribution of transactions in the sample is displayed in Table 1.

In terms of peer count, the study summarises previous literature and define peers from three aspects, and count the number of peer investors in the metro three years prior to respective transaction.⁹ The first is based on the commonly used geographical concepts, including peers from same country (home peer) or from same continent. The second is from economic aspect: the study define the mature and emerging markets based on Global National Income (GNI) ranking from World Bank, JLL Global Transparent Index and World Economic Forum financial market development ranking (average in time window). Investors from the markets that shares resembling condition within a continent may have stronger connection thus influence each other (economic resembling). Moreover, “Trait-base” mimicry suggests investor has the incentive to follow the group that have outstanding economic performance, thus this study include “trait” peers that count the number of investors from mature market in previous three years. The third aspect consider cultural similarity together with economic and geographic features. The study adopts Hofstede’s cultural distance index, and combine it economic condition and geographic location; the group is measured by k-means cluster analysis, with optimal group number measured by within-sample sum of squares (WSS) and elbow graph.¹⁰ In order to detect if there is non-linear effect on the peer group influence, the study further convert peer count into splines, with 10 peers each spline in non-London area and 15 peers each spline in London area. Distribution of peer group is presented in Table 2.

Other independent variables include size, age, and industry sector of property assets, partial interest of the transaction, and broker’s involvement, capital type of investors. Most of the property information is from RCA; the study also tracks information in CoStar in order to complete a few records that lack

⁹ Regression sample in peer effect part has exclude transactions in year 2001 and 2002, as peer counts are not available.

¹⁰ Hofstede 6D index measure culture difference among countries. The six aspects are: Power Distance (PDI), Individual vs Collectivism, Masculinity versus Femininity, Uncertainty Avoidance, Long-term versus Short-term orientation, and Indulgence versus Restraint. Due to the limitation of data in certain country, this study adopts former four elements to measure the similarities among countries. Detailed derivation of the group is not included in the main article buy available by further request.

property-specific information in RCA, but that is not a predominant group. Property size is converted to natural log form in order to control the non-linear relation. Property age is derived from the time between the transaction and latest renovation/construction year; squared-form is included in the model for the non-linearity concern. Partial interest (“fractional”) is an ordinal variable measuring whether the investor/consortia purchase full ownership of the building, with 1 indicates “minority”, 2 for “majority”, and 3 for “full ownership”. Descriptive statistics among the explanatory variables are exhibited in Table 3, no significant correlation is detected among numerical and ordinal variables. The study has also controlled the four broad region as well as year fixed effects.

4.2. Model Specification

Empirical tests employ multinomial logit model, as it specifically fits the case that dependent variables are unordered. The specification of the model is:

$$\text{logit}(Y = m_i) = \ln \frac{\text{Prob}(Y = m_i)}{\text{Prob}(Y = m_0)} = \mathbf{X}\boldsymbol{\beta}$$

Where m_i indicates specific dependent variable category, and m_0 indicates the base category (single UK investor or single foreign investor). X is a $1 \times n$ vector of independent variables and β is a $n \times 1$ vector of coefficients. Coefficients in discrete choice model cannot directly display the marginal effect, which is the probability of dependent variable category against base category due to the change of independent variable (the odds). As a result, the study uses the change of odd ratio, which is specifies as:

$$\text{Change of Odd Ratio}(Y = m_i \text{ against } Y = m_0) = \frac{\text{Pr}(Y = m_i | X = 1) / \text{Pr}(Y = m_i | X = 0)}{\text{Pr}(Y = m_0 | X = 1) / \text{Pr}(Y = m_0 | X = 0)}$$

This statistic measures the comparative probability of category m_i (as nominator) against base type m_0 (or other reference type, as denominator) as a result of the change on independent variable X . A figure larger than 1 implies a higher likelihood that dependent variable is m_i (against m_0), while a figure smaller than 1 implies a higher likelihood that dependent variable is m_0 . The empirical test will conduct the change of odd ratios based on submarket tiers and peer counts.

5. Empirical Results

5.1. Submarket Selections among UK and Overseas Investors

The initial attempt is to detect heterogeneous preferences among domestic and foreign investors with different strategic alliances. Table 4 plots the results, with single UK investors as base type

category. In non-London regions, the cost-sharing hypothesis (H1-3) gets supported most of the consortia, as property size and age show significant positive estimates among all three types of consortia. This implies when investors target on larger or older (assumed to be riskier) properties, they tend to share the cost or risk with partner. In terms of submarket selection, there is no clear trend in city fringes among the five categories, and a faint trace that when UK investor invests in regional core area, alliance with another UK investor is not very essential. However, the coefficient of suburban market in the estimation of UK-foreign group is positive and statistical significant, and further in Table 5, those significant changes of odd ratios where UK-foreign consortia as nominators are all larger than 1, while those as denominators are smaller than 1; above results indicate the international alliance between UK and foreign investors have stronger preference on suburban area than all other four categories, and some weak evidence on regional core area, which consists to the “mutual benefit” as H1-2 indicates. It might not be surprised to see UK-foreign consortia has broader market horizon than other foreign investors, but interesting to see that international consortia has higher probability to invest in suburban area comparing to pure UK investors. Tracking back the distribution of sample, a dominated proportion has conducted by North American and European investors, which call on the further test on the influence of peers and investors’ own experience. On the other hand, UK investors in this liaison can also benefit from the superior asset/portfolio management skill if partnering with reputable investors from other mature economies.

Meanwhile, in London market, significant negative estimates of overseas investors (both single and in consortia), along with respective changes of odd ratios which are less than one in all comparisons, reflect the conservative preferences of foreign group towards properties outside the “core” area, which coincides the “foreignness” behaviour (H1-1) but leaves UK-foreign group as opposite. However, one may argue that as institutional investors or large firms require investment properties with large scales, which generally locate in “core” area (City, west End and Canary Wharf), the selection is tied with property size. Model 1-3 hence adds interaction between investor types and size into the model. While other elements not changing dramatically, the coefficient of outer London becomes more negative and significant, whereas most of the interaction terms are positively significant. The combined results suggest that choices of UK-foreign investors might linked with property size; due to the high prices of London property, UK investors might need to form in partnership with foreign firm/institutions in order to acquire the assets. Nonetheless, the effect is not valid in other groups, nor does it causes any noticeable change in other elements. Regarding to the substitution effect of broker as information conduit, only both-UK investor group show significant negative coefficient, indicating local consortia is not limited by information barrier. Estimates of other groups are vague, and H 3-1 has not get solid support.

5.2. Peer Effects on Strategy Alliance

Further, the study adopts foreign investor records only, and detect the impact of peer groups on investor's partnering choices as well as submarket selection. Table 6 and Table 8 exhibit the results in non-London and London area respectively, with Table 7 and Table 9 present changes of odd ratios. Sign and significance of asset-specific characters do not change dramatically, thus cost/risk-sharing incentive is confirmed. Broker variable has positive effect in both-foreign groups, suggesting that comparing to single foreign investors (base type), both-foreign group get higher probability to hire broker; while that of UK-foreign consortia is negative but insignificant. Coefficients of partial interest ownership between non-London and London sample reveal an interesting comparison: in non-London market UK-foreign consortia tend to acquire full ownership, whereas in London the "pure" foreign consortia take full ownership. Adopting the wisdom from IB study, partial ownership is a "real option" that allows investors to keep flexibility on further acquisition depending on future performance of the market. Hence, in non-London market, foreign investors are more confident to acquire full ownership when partnering with a local investor, whereas in London market information is easier to access, foreign investors concern less about market uncertainty and the partnership might be driven by property size.

Among all the peer measurements, results in non-London market shows that investors are more likely to be independent rather than entering partnership when there is larger group of peers that shares resembling cultural and economic background (Model 2-6 and 2-7); the effect is significant and comparatively stable among different scales of peer group. However, pure "cultural-resembling" peers (Model 2-5) do not receive solid supports. It might worth noting that a proportion of oversea investors in the sample are from North America (esp. US) and Europe. When counting the peer groups, these investors are assumed to be in the submarket with larger peer group; thus the "30+" peer count coefficients in Model 2-1 to 2-4 have larger scale (hence change of odd ratios) than other categories. An interesting phenomenon the four models is that partnering with foreign investors becomes a preferred choice than independent investing or partnering with UK investors, and the trend is generally increasing. We can probably explain this by the business network hypothesis: with all essential location-specific resources and market environment established by previous investors, foreign investors get wider options on partnering as they are not restricted by the LSA from a UK partner, cooperating with a peer might be a preferred choice which reduce cultural-base friction and avoid information asymmetry.

Peer effects in London market in Table 8 show inconsistent estimates. Evidences that consist to expectations of H2-1 show in Model 2-12 and 2-14, where negative (and significant) estimates are shown on both-foreign consortia against single foreign investors, implying that foreign investors tend to conduct independent investments instead of partnering with other foreigners if there are larger group of peers sharing social-economic similarity; decreasing trend is also show on Model 2-13 (more intuitive trend can be seen from its changes of odd ratios), but with insignificant estimate. Home peers in London market show positive effect in UK-foreign consortia when peer count is above 30, and the increasing

coefficients (equivalently, decreasing change of odd ratios where UK-foreign as denominator) imply that as peer group increase, there is increasing probabilities for a UK-foreign consortia investing in the firm rather than an independent foreign investor. The same increasing trend is shown, on the other hand, by negative-to-positive coefficients in economic-base peers (Model 2-10 and 2-11) as well, though only “trait” peers are significant. Although it might be fragmental to digest the outcomes from the sign and significance based on each aspect, but when ranking the comparative preferences among three options in each scenarios, a general trend is that when peer group is comparatively smaller, investors intend to be independent, while as the peer group expand, it is unclear whether being independent or partnering with UK partner is a superior choice, but partnering with other foreign investors becomes a less preferred option. Comparing to the trend in non-London market, London market shows a different picture: rather than restricted within the resources that contribute to peer group, overseas investors adapt to local partner in London market; peer group hence act more as a “bridge” enhancing the mutual understanding between UK and foreign group and facilitating the cooperation chances.

Furthermore, empirical works examine the peer influence and submarket effect jointly, with results presented in Table 10 to Table 13. When adding peer count and submarket together, socio-economic-resembling peer group (Model 3-6 and 3-7) are still comparatively significant. Significant levels of submarket categoriers drop in all scenarios of non-London sample, but still have subtle explanatory strengths. The comparative investment probabilities (change of odd ratio) also shrink comparing to that from Model 1-1.¹¹ In non-London market, although there is still positive evidence that UK-foreign consortia have higher probabilities to explore peripheral market, the significance is faint. In London market, on the other hand, UK-foreign consortia still incline to conduct investment in submarket outside the core market of London, but the strong divergent preference of both-foreign consortia do not show in this model. Significance level of other property-specific estimates keep the same. Positive and significant coefficients are shown in both-foreign columns, meaning that partnership has different role from broker (H3-1) while peer group may not provide adequate market information (H3-2). Whereas in London market sample (Table 12 and Table 13), incentive of UK-foreign investor to explore “non-core” market even show positive and stronger effect among all scenarios. Influence of peer group remain stable. Considering that degree of information transparency is a lot higher in London than others, the market targeting in London is comparatively “rational” as it is independent from peer’s influence, while in non-London market, the influence of peers group affects the entry-decision proceeding investors.

¹¹ Though base category of Model 1-1 is single UK investors while that of Model 3-6/7 is single foreign investors, the sample size of single foreign and UK-foreign are the same in two models, and the change of odd ratios is calculated in the same way. The comparison is sensible.

6. Conclusions and Discussions

Investment decisions of overseas investors can be distorted under limited market information and resources, reflected on the strategic alliance and market entry choices of overseas investors. Previous investors who share same background create a business network in host market, and the knowledge /resource spillover effect equips proceeding investors with the essential network rather than relying on a local partner, hence reduce the potential agency and information cost. This study examines the ideas in commercial real estate investment market based on 2001-2015 commercial real estate transaction record in London, Manchester, Midland and Yorkshire. Multinomial logit model is employed. Empirical results reveal the divergent target market choices between UK-foreign consortia and other group. Scales of peer group help subtracting the effect, but among the seven types of peer count from three aspects, only groups that are based on socio-economic similarities show stable effect. The influences of peer group differ between London and non-London areas. Peer groups in non-London area act as business network builder, and proceeding investors are confident to conduct independent studies when there are more peers; whereas in London market, with the influence of peers, proceeding foreign investors have more options of partners. Target submarkets of overseas investors in non-London area get influenced by peer group, while the decision within London market is comparatively more independent on the value of the location itself.

The study adopts the ideas of peer group and business network from international business study, and explain investors' choices from resource-based theory and agency theory, thus contribute empirical evidence in investment sector. Meanwhile, the result expands the discussion on strategy of investor under incomplete information environment. Implication of the results, however, is double-blade: on the one hand, the choices of investor clustering reveal the influence of existing network of peer investors, which benefits proceeding investors to access new market, facilitates transactions thus provide liquidity to sub market. On the other hand, choices of proceeding investors in this case are the results of the opaque market mechanism. The choices are "bounded optimal" that reach to an equilibrium given the market state, rather than a "efficient" choice that maximise the benefit of all participants. The cluster of investor leads to an unbalanced distribution of investors in the market with resembling risk exposure, which, under extreme condition where investors in the same group need to adjust the asset simultaneously, would in turn hinder the market depth and exaggerate the market evolvement in the cycle. An example is the concept of "rational herding" (Byrne, Jackson and Lee, 2013): the "rush" decision that investors made is a bounded-rational judgement given current condition, but it ignores the market change when all participants react based on same expectation. Further study may address on the group choice under current market mechanism. The study also compares the role of brokerage and partner. Result demonstrates the different role between broker (market information sourcing) and strategic partner (liaising local business network and market resource), indicating that direct market

investment need more than asset information. An interesting point one may further argue is the value of trust an investor have towards broker against its peer group, and whether the *ex ante* judgement biases investors decision-making. With adequate data, proceeding study may detect the performance of the investment when one is influenced by peer group.

There are a few arguments towards the current model setting given the limited available information. Some may argue that the incentives of overseas investors differ, and regulation of home countries may affect the investment choices of overseas investors.¹² The argument does not conflict to the intuition of this study, as the study discusses the optimal alliance choices of investors given that they are eligible to acquire asset in host market. There are certain regulations (e.g. Taiwan) might regulate the ownership structure when investors conduct FDI, but as it is not the predominant group the dataset, we believe that remains a noise in the model. Moreover, a drawback of existing model comparing to parallel study in IB sector is the lack of buy-side investor information in the model (such as investor size and other financial data etc.). As a majority of investor in direct market are in private sector, the study tried to keep the diversity of investor group thus sacrifice the complete information. When detecting performance, research may adopt the public REIT/REOC sample with a wider market range. Further, in the undisclosed robustness test, this study has also detected the different choices among different cooperation forms (single against JV partnership, and management outsourcing), whether partner is a peer partner (partnering with UK partner, against partnering a peer partner, and other foreign partner) and multinomial multilevel modelling technique with grand region as level variable. With existing dataset, no solid empirical result is detected, leaving these as further research directions.

¹² For example, Chinese government has control the overseas investment in certain industries since 2016 but encourage overseas investment prior to that. This can be detected from current events that Chinese developer Wanda and investment firm HNA disposing their global assets.

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Table 1 Submarket distribution

<i>Non-London</i>	Submarket				Industry sector			
	City core	City fringe	Region core	Suburban	Industrial	Office	Retail	
Birmingham/	Birmingham	247	124	0	3	72	191	111
Midland	Midlands Other	0	1	230	311	223	65	254
	Liverpool	69	35	0	0	12	39	53
	Manchester Metro	223	157	0	0	64	201	115
Greater Manchester	Manchester/NW							
Region	Other	0	0	71	151	65	44	113
	Leeds	168	0	0	0	14	121	33
	Newcastle	71	45	0	1	9	53	55
	Sheffield	52	50	0	7	36	40	33
Yorkshire	Northeast Other	0	4	130	160	55	48	191
<i>London</i>		Core	Inner	Outer				
Greater London	London	2,049	131	676		169	2,286	401

Table 2 Investor Distribution

	Investor Type				Strategic Alliance						
	Equity Fund	Institutional	Investment Manager	Private	Public	UK Single	Both UK	UK-Foreign	Foreign Single	Both Foreign	
<i>Non-London area</i>											
Birmingham	49	76	103	96	50	191	57	37	84	10	
Midlands Other	51	103	148	141	99	312	51	82	88	16	
Liverpool	13	21	18	40	12	51	20	8	20	6	
Manchester Metro	44	73	101	111	51	210	52	34	82	8	
Manchester/NW Other	20	42	55	64	41	129	38	28	33	2	
Leeds	25	33	53	36	21	98	14	8	44	6	
Newcastle	16	26	26	33	16	64	16	20	18	6	
Sheffield	12	23	29	31	14	59	8	12	28	4	
Northeast Other	37	46	89	80	42	181	16	44	54	6	
<i>London</i>											
London	679	929	1,391	1,452	720	1,308	232	328	891	195	

Table 3 Descriptive Statistics (Explanatory variables)

Descriptive statistics						Correlation				
	N	Mean	S.D	Min.	Max.	Broker	ln(Size)	Age	Age^2	fractional
Non-London										
Broker	2310	0.64	0.48	0	1	1				
ln(Size)	2310	11.61	1.05	7.515	14.856	0.0715*	1			
						[0.0006]				
Age	2310	19.80	28.66	0	299	-0.0624*	-0.1819*	1		
						[0.0027]	[0.0000]			
Age^2	2310	1212.85	4343.48	0	89401	-0.0675*	-0.1906*	0.8958*	1	
						[0.0012]	[0.0000]	[0.0000]		
fractional	2310	2.94	0.30	1	3	0.1267*	-0.1678*	0.0359	0.0417*	1
						[0.0000]	[0.0000]	[0.0847]	[0.0452]	
London										
Broker	2856	0.63	0.48	0	1	1				
ln(Size)	2856	11.20	1.16	6.142	14.457	-0.0297	1			
						[0.1126]				
Age	2856	27.88	43.49	0	461	-0.0650*	-0.2827*	1		
						[0.0005]	[0.0000]			
Age^2	2856	2667.91	10491.75	0	212521	-0.0605*	-0.2229*	0.8843*	1	
						[0.0012]	[0.0000]	[0.0000]		
fractional	2856	2.94	0.26	1	3	0.0375*	-0.1964*	0.0272	0.0165	1
						[0.0448]	[0.0000]	[0.1455]	[0.3793]	

The table displays the descriptive statistics of numerical and ordinal explanatory variables. Figures in brackets are significant level of pairwise correlations.

Figure 3 Peer Number Distribution (Non-London)



Figure 4 Peer Number Distribution (London)



Table 4 Submarket Selection among domestic and foreign investors

	1-1 Non-London Regions				1-2 London, no interaction				1-3 London, with interactions			
	Both UK	UK-Foreign	Foreign-Single	Both-Foreign	Both UK	UK-Foreign	Foreign-Single	Both-Foreign	Both UK	UK-Foreign	Foreign-Single	Both-Foreign
Submarkets												
City Fringe	-0.209	0.124	0.001	-0.085								
	[-0.995]	[0.539]	[0.006]	[-0.219]								
Regional Centre	-0.469**	0.092	-0.178	-0.745								
	[-2.083]	[0.398]	[-1.020]	[-1.619]								
Suburban	-0.270	0.543***	-0.226	-0.384								
	[-1.325]	[2.592]	[-1.299]	[-0.958]								
Inner London					-0.408	-0.286	-1.094***	-1.113**	-0.409	-0.308	-1.089***	-1.057**
					[-1.127]	[-0.937]	[-4.135]	[-2.313]	[-1.129]	[-0.991]	[-4.108]	[-2.193]
Outer London					0.031	-0.344*	-0.832***	-1.017***	0.026	-0.355**	-0.814***	-1.003***
					[0.168]	[-1.954]	[-6.047]	[-3.732]	[0.141]	[-2.005]	[-5.903]	[-3.689]
Investor capital group												
Institutional	-0.471*	-0.965***	-0.772***	0.225	0.126	-0.011	0.032	1.543***	1.126	-0.889	-2.288	-1.554
	[-1.756]	[-3.922]	[-3.762]	[0.496]	[0.468]	[-0.048]	[0.185]	[5.170]	[0.412]	[-0.374]	[-1.162]	[-0.389]
Investment Manager	-0.258	-0.601***	-0.783***	-0.908*	-0.256	-0.495**	-0.711***	0.406	-1.791	-4.450*	1.188	-2.136
	[-1.021]	[-2.757]	[-4.073]	[-1.830]	[-1.056]	[-2.434]	[-4.542]	[1.342]	[-0.710]	[-1.950]	[0.665]	[-0.516]
Private	-0.643**	-1.334***	-1.576***	-1.746***	0.717***	-0.681***	-0.556***	-0.187	-0.943	-7.041***	2.826*	-4.235
	[-2.571]	[-5.652]	[-7.690]	[-3.066]	[-2.886]	[-3.262]	[-3.609]	[-0.573]	[-0.379]	[-3.140]	[1.704]	[-0.970]
Public	0.836***	-2.271***	-0.912***	-0.232	0.926***	-1.179***	-0.980***	-0.141	-1.744	-8.872***	0.830	4.135
	[-2.892]	[-6.770]	[-4.301]	[-0.460]	[-3.139]	[-4.615]	[-5.407]	[-0.410]	[-0.572]	[-2.995]	[0.401]	[0.953]
Broker involvement	0.037	-0.099	-0.001	0.456	0.680***	-0.210	0.007	-0.241	0.685***	-0.212	-0.001	-0.236
	[0.243]	[-0.646]	[-0.009]	[1.369]	[-4.458]	[-1.540]	[0.066]	[-1.365]	[-4.475]	[-1.544]	[-0.010]	[-1.329]
ln(Size)	0.261***	0.449***	0.028	0.335**	-0.005	0.526***	0.359***	1.047***	-0.034	0.228	0.479***	0.945***
	[3.375]	[5.486]	[0.436]	[2.059]	[-0.064]	[8.120]	[7.718]	[11.479]	[-0.184]	[1.477]	[3.787]	[3.268]
Age	0.011**	0.029***	0.004	0.042**	0.020***	0.004	-0.009***	-0.011**	0.020***	0.004	-0.009***	-0.012**
	[1.990]	[3.345]	[0.688]	[2.389]	[3.226]	[1.011]	[-3.292]	[-2.308]	[3.173]	[0.869]	[-3.278]	[-2.304]

	1-1 Non-London Regions				1-2 London, no interaction				1-3 London, with interactions			
	Both UK	UK-Foreign	Foreign-Single	Both-Foreign	Both UK	UK-Foreign	Foreign-Single	Both-Foreign	Both UK	UK-Foreign	Foreign-Single	Both-Foreign
Age^2	-0.000	-0.000***	-0.000*	-0.000*	0.000***	-0.000	0.000***	0.000**	0.000***	-0.000	0.000***	0.000**
	[-1.040]	[-3.045]	[-1.692]	[-1.953]	[-3.198]	[-1.031]	[3.329]	[2.380]	[-3.154]	[-0.948]	[3.295]	[2.446]
fractional	-0.099	0.307	-0.026	14.024	-0.431	-0.009	-0.228	0.401	-0.421	-0.010	-0.183	0.375
	[-0.414]	[1.128]	[-0.127]	[0.023]	[-1.606]	[-0.036]	[-1.214]	[1.277]	[-1.570]	[-0.041]	[-0.955]	[1.184]
Property sectors												
Office	0.383*	0.421*	0.435**	0.312	0.670*	0.761**	0.052	-0.015	0.694*	0.788**	0.049	-0.034
	[1.661]	[1.689]	[2.403]	[0.653]	[1.721]	[2.194]	[0.225]	[-0.037]	[1.777]	[2.262]	[0.212]	[-0.084]
Retail	0.116	0.569***	-0.263	0.466	1.002**	0.978***	0.002	-0.447	1.028***	0.984***	-0.021	-0.466
	[0.577]	[3.002]	[-1.601]	[1.197]	[2.518]	[2.749]	[0.009]	[-1.006]	[2.578]	[2.761]	[-0.086]	[-1.041]
Institutional x ln(Size)									-0.092	0.073	0.207	0.264
									[-0.379]	[0.353]	[1.210]	[0.797]
Investment Manager x ln(size)									0.138	0.339*	-0.162	0.213
									[0.622]	[1.708]	[-1.043]	[0.617]
Private x ln(Size)									0.019	0.548***	-0.300**	0.335
									[0.084]	[2.818]	[-2.073]	[0.925]
Public x ln(Size)									0.072	0.651***	-0.154	-0.360
Constant	4.938***	-7.515***	-1.664	-64.320	-0.889	-7.735***	-3.828***	-15.719***	-0.621	-4.266**	-5.362***	-14.427***
	[-3.429]	[-4.990]	[-1.351]	[-0.028]	[-0.658]	[-6.096]	[-4.151]	[-9.148]	[-0.260]	[-2.094]	[-3.243]	[-3.881]
Year FE	Controlled				Controlled				Controlled			
Region FE	Controlled				Controlled				Controlled			
Obs.	2310				2856				2856			
Log Likelihood	-2615				-3508				-3481			
LR Chi2	509.7				710				763.4			
p-R2	0.0888				0.0919				0.0988			
AIC	5479				7239				7218			

The table exhibits the multinomial logit result of submarket selection without adding peer count. Base group for the three model are all single UK investors. For the explanatory factor variables, base categories of submarket, investor capital types and property sector are city core, equity fund, and industrial. Probability of explanatory variables can be derived by $\exp(\beta)/(1+\exp(\beta))$, where β stands for coefficients. Z-statistics is shown in brackets, and *** p<0.01, ** p<0.05, * p<0.1.

Table 5 Change of odd ratios (Submarket)

Non-London Area (Model 1-1)					London Area, no interaction (Model 1-2)				
	UK Single	Both UK	UK-Foreign	Foreign Single		UK Single	Both UK	UK-Foreign	Foreign Single
<u>City Fringe</u>					<u>Inner London</u>				
Both UK	0.811 [-0.995]				Both UK	0.665 [-1.127]			
UK-Foreign	1.132 [0.539]	1.396 [1.176]			UK-Foreign	0.751 [-0.937]	1.129 [0.277]		
Foreign Single	1.001 [0.006]	1.234 [0.879]	0.884 [-0.484]		Foreign Single	0.335*** [-4.135]	0.504* [-1.668]	0.446** [-2.278]	
Both Foreign	0.918 [-0.219]	1.132 [0.293]	0.811 [-0.488]	0.917 [-0.214]	Both Foreign	0.329** [-2.313]	0.494 [-1.23]	0.438 [-1.576]	0.981 [-0.038]
<u>Regional Core</u>					<u>Outer London</u>				
Both UK	0.625** [-2.083]				Both UK	1.032 [0.168]			
UK-Foreign	1.096 [0.398]	1.753* [1.889]			UK-Foreign	0.709* [-1.954]	0.687 [-1.621]		
Foreign Single	0.837 [-1.02]	1.338 [1.137]	0.763 [-1.042]		Foreign Single	0.435*** [-6.047]	0.422*** [-4.226]	0.614** [-2.535]	
Both Foreign	0.475 [-1.619]	0.759 [-0.555]	0.433* [-1.687]	0.567 [-1.194]	Both Foreign	0.362*** [-3.732]	0.351*** [-3.377]	0.511** [-2.243]	0.832 [-0.658]
<u>Suburban</u>					London Area, with interactions (Model 1-3)				
	UK Single	Both UK	UK-Foreign	Foreign Single		UK Single	Both UK	UK-Foreign	Foreign Single
<u>Both UK</u>					<u>Inner London</u>				
Both UK	0.764 [-1.325]				Both UK	0.664 [-1.129]			
UK-Foreign	1.722** [2.592]	2.255*** [3.065]			UK-Foreign	0.735 [-0.991]	1.107 [0.23]		
Foreign Single	0.798 [-1.299]	1.045 [0.183]	0.463*** [-3.192]		Foreign Single	0.337*** [-4.108]	0.507* [-1.648]	0.458** [-2.172]	
Both Foreign	0.681 [-0.958]	0.892 [-0.264]	0.396*** [-2.144]	0.854 [-0.378]	Both Foreign	0.347 [-2.193]	0.523 [-1.129]	0.473 [-1.422]	1.032 [0.062]
					<u>Outer London</u>				
					Both UK	1.027 [0.141]			
					UK-Foreign	0.701** [-2.005]	0.683 [-1.642]		
					Foreign Single	0.443*** [-5.903]	0.432*** [-4.101]	0.632** [-2.367]	
					Both Foreign	0.367*** [-3.689]	0.357*** [-3.318]	0.524** [-2.154]	0.828 [-0.676]

The table exhibits the change of odd ratios generated by submarket selection models. For each ratio, row category is nominator and column category is denominator. A ratio larger than 1 indicates that the nominator category has a higher likelihood to be true than denominator category being true, given the change of independent variable. Z-statistics is shown in brackets, and *** p<0.01, ** p<0.05, * p<0.1.

Table 6 Peer Effect (Non-London)

Peer Group	2-1 Home Peer		2-2 Same Continent		2-3 Economic-resembling		2-4 "Trait"		2-5 Cultural-resembling		2-6 Socia-economic		2-7 Socio-economic and geographi	
	UK_Foreign	noth_Foreign	UK_Foreign	noth_Foreign	UK_Foreign	noth_Foreign	UK_Foreign	noth_Foreign	UK_Foreign	noth_Foreign	UK_Foreign	noth_Foreign	UK_Foreign	noth_Foreign
1-10 peers	-0.261	-0.068	-1.255*	-0.321	-1.197**	-0.279	-0.514	0.614	-0.536	-0.627	-1.428*	-2.974***	-1.232**	-1.096*
	[-0.690]	[-0.148]	[-1.646]	[-0.323]	[-2.286]	[-0.409]	[-1.204]	[0.865]	[-1.248]	[-1.222]	[-1.707]	[-2.861]	[-2.487]	[-1.834]
10-20 peers	-0.329	0.340	-1.243	-0.066	-0.878	0.006	-0.159	1.087	-0.314	-0.188	-1.492*	-2.470**	-0.969*	-0.645
	[-0.676]	[0.545]	[-1.534]	[-0.062]	[-1.517]	[0.008]	[-0.333]	[1.382]	[-0.638]	[-0.309]	[-1.745]	[-2.302]	[-1.765]	[-0.943]
20-30 peers	-0.343	0.960	-1.354	0.795	-1.060	0.613	-0.441	1.386	-0.509	0.270	-1.453*	-2.963**	-1.119*	-0.144
	[-0.575]	[0.879]	[-1.605]	[0.676]	[-1.572]	[0.527]	[-0.723]	[1.178]	[-0.828]	[0.250]	[-1.667]	[-2.491]	[-1.723]	[-0.130]
30+ peers	0.046	3.460*	-1.043	2.892	-0.705	2.867	-0.111	3.612**	-0.203	2.573	-1.160	0.760	-0.812	2.184
	[0.051]	[1.917]	[-0.951]	[1.483]	[-0.743]	[1.586]	[-0.122]	[1.971]	[-0.224]	[1.481]	[-1.053]	[0.444]	[-0.870]	[1.254]
Investor capital group														
Institutional	-0.636	1.790***	-0.516	1.391**	-0.557	1.710***	-0.517	1.509**	-0.540	1.358**	-0.493	1.020*	-0.558	1.373**
	[-1.532]	[2.795]	[-1.358]	[2.398]	[-1.411]	[2.778]	[-1.333]	[2.558]	[-1.371]	[2.280]	[-1.274]	[1.809]	[-1.421]	[2.317]
Investment Manager	-0.340	0.233	-0.333	0.061	-0.318	0.249	-0.301	0.046	-0.328	-0.008	-0.308	-0.160	-0.309	0.024
	[-1.076]	[0.382]	[-1.051]	[0.104]	[-0.998]	[0.409]	[-0.954]	[0.078]	[-1.036]	[-0.013]	[-0.972]	[-0.283]	[-0.976]	[0.041]
Private	-0.527	0.802	-0.570	0.544	-0.587	0.777	-0.466	0.784	-0.494	0.509	-0.470	0.310	-0.578	0.456
	[-1.210]	[1.099]	[-1.323]	[0.778]	[-1.349]	[1.065]	[-1.054]	[1.098]	[-1.143]	[0.721]	[-1.105]	[0.452]	[-1.331]	[0.642]
Public	-1.898***	1.736***	-1.957***	1.508**	-2.102***	1.711**	-1.788***	1.649**	-1.896***	1.454**	-2.146***	1.156*	-2.117***	1.371**
	[-2.968]	[2.590]	[-3.056]	[2.342]	[-3.102]	[2.547]	[-2.847]	[2.543]	[-2.956]	[2.266]	[-3.125]	[1.894]	[-3.162]	[2.125]
Broker involvement	-0.151	0.758*	-0.167	0.730*	-0.145	0.742*	-0.131	0.775*	-0.154	0.743*	-0.167	0.689*	-0.175	0.709*
	[-0.584]	[1.892]	[-0.647]	[1.821]	[-0.561]	[1.848]	[-0.509]	[1.939]	[-0.597]	[1.870]	[-0.649]	[1.748]	[-0.678]	[1.781]
ln(Size)	0.353***	0.300	0.382***	0.324*	0.371***	0.317*	0.366***	0.302	0.374***	0.313*	0.381***	0.312	0.379***	0.322*
	[2.604]	[1.581]	[2.823]	[1.699]	[2.685]	[1.671]	[2.690]	[1.612]	[2.758]	[1.659]	[2.809]	[1.635]	[2.765]	[1.691]
Age	0.033**	0.047**	0.035**	0.054**	0.035**	0.047**	0.031**	0.050**	0.032**	0.050**	0.034**	0.058**	0.033**	0.051**
	[2.331]	[2.117]	[2.473]	[2.479]	[2.468]	[2.107]	[2.196]	[2.281]	[2.238]	[2.263]	[2.344]	[2.441]	[2.261]	[2.276]
Age^2	-0.000*	-0.000*	-0.000**	-0.001**	-0.000**	-0.000*	-0.000*	-0.000*	-0.000*	-0.000*	-0.000**	-0.001**	-0.000*	-0.001*
	[-1.947]	[-1.785]	[-2.008]	[-2.059]	[-2.053]	[-1.763]	[-1.814]	[-1.877]	[-1.890]	[-1.878]	[-1.989]	[-2.022]	[-1.938]	[-1.889]
fractional	1.046*	15.993	1.096*	15.843	1.168**	16.064	1.048*	15.702	1.083*	15.982	1.065*	15.864	1.111**	15.805
	[1.873]	[0.015]	[1.944]	[0.015]	[2.037]	[0.015]	[1.863]	[0.014]	[1.925]	[0.015]	[1.901]	[0.015]	[1.974]	[0.015]
Property sectors														
Office	-0.410	0.057	-0.393	-0.051	-0.336	0.086	-0.357	0.019	-0.361	0.040	-0.398	-0.054	-0.333	0.093
	[-1.133]	[0.107]	[-1.098]	[-0.096]	[-0.921]	[0.161]	[-0.988]	[0.036]	[-1.007]	[0.076]	[-1.107]	[-0.102]	[-0.923]	[0.175]
Retail	0.789**	0.876*	0.877***	0.914*	0.882***	0.951**	0.822***	0.930**	0.817***	0.958**	0.794**	0.988**	0.864***	0.990**
	[2.559]	[1.847]	[2.841]	[1.931]	[2.839]	[2.015]	[2.655]	[1.961]	[2.647]	[2.046]	[2.571]	[2.087]	[2.773]	[2.107]
Constant	-7.530***	-71.772	-6.960**	-56.438	-7.034**	-72.065	-7.743***	-56.548	-7.937***	-56.027	-7.333**	-52.443	-7.373**	-55.124
	[-2.579]	[-0.018]	[-2.382]	[-0.017]	[-2.418]	[-0.020]	[-2.701]	[-0.017]	[-2.783]	[-0.018]	[-2.505]	[-0.016]	[-2.565]	[-0.018]
Year FE	Controlled		Controlled		Controlled		Controlled		Controlled		Controlled		Controlled	
Region FE	Controlled		Controlled		Controlled		Controlled		Controlled		Controlled		Controlled	
Observations	523		535		530		529		529		532		529	
Log Likelihood	-363.1		-370.7		-363.9		-367.6		-368.4		-368		-365.9	
LR Chi2	139.2		146.1		149.7		140.9		139.3		146.1		144.2	
p-R2	0.161		0.165		0.171		0.161		0.159		0.166		0.165	
AIC	846.2		861.5		847.9		855.2		856.8		856		851.9	

The table exhibits the multinomial logit result of peer influence. Base group is single foreign investors. For the explanatory factor variables, base categories of submarket, investor capital types and property sector are city core, equity fund, and industrial. Probability of explanatory variables can be derived by $\exp(\beta)/(1+\exp(\beta))$, where β stands for coefficients. Z-statistics is shown in brackets, and $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table 7 Change of odd ratio (Peer effect, non-London)

Home Peer (2-1)	1-10	11-20	21-30	30+
Foreign Sing vs UK-Foreign	1.298 [0.69]	1.39 [0.676]	1.409 [0.575]	0.955 [-0.051]
Both Foreign vs UK-Foreign	1.213 [0.363]	1.953 [0.936]	3.68 [1.112]	30.384* [1.818]
Both Foreign vs Foreign Single	0.934 [-0.148]	1.405 [0.545]	2.612 [0.879]	31.825* [1.917]
Economic-resembling peer (2-3)	1-10	11-20	21-30	30+
Foreign Sing vs UK-Foreign	3.309** [2.286]	2.407 [1.517]	2.886 [1.572]	2.023 [0.743]
Both Foreign vs UK-Foreign	2.502 [1.209]	2.422 [1.009]	5.328 [1.339]	35.581* [1.878]
Both Foreign vs Foreign Single	0.756 [-0.409]	1.006 [0.008]	1.846 [0.527]	17.588 [1.586]
Cultural-resembling peers (2-5)	1-10	11-20	21-30	30+
Foreign Sing vs UK-Foreign	1.71 [1.248]	1.369 [0.638]	1.664 [0.828]	1.225 [0.224]
Both Foreign vs UK-Foreign	0.913 [-0.155]	1.134 [0.182]	2.18 [0.674]	16.067 [1.522]
Both Foreign vs Foreign Single	0.534 [-1.222]	0.828 [-0.309]	1.31 [0.25]	13.112 [1.481]
Socio-economic peer (2-6)	1-10	11-20	21-30	30+
Foreign Sing vs UK-Foreign	4.172* [1.707]	4.447* [1.745]	4.277* [1.667]	3.191 [1.053]
Both Foreign vs UK-Foreign	0.213 [-1.366]	0.376 [-0.83]	0.221 [-1.173]	6.822 [1.052]
Both Foreign vs Foreign Single	0.051*** [-2.861]	0.085** [-2.302]	0.052** [-2.491]	2.138 [0.444]

Peer from same continent (2-2)	1-10	11-20	21-30	30+
Foreign Sing vs UK-Foreign	3.507* [1.646]	3.466 [1.534]	3.872 [1.605]	2.838 [0.951]
Both Foreign vs UK-Foreign	2.544 [0.821]	3.245 [0.967]	8.578 [1.619]	51.163* [1.891]
Both Foreign vs Foreign Single	0.725 [-0.323]	0.936 [-0.062]	2.215 [0.676]	18.026 [1.483]
"Traits" (2-4)	1-10	11-20	21-30	30+
Foreign Sing vs UK-Foreign	1.672 [1.204]	1.172 [0.333]	1.555 [0.723]	1.117 [0.122]
Both Foreign vs UK-Foreign	3.089 [1.462]	3.476 [1.464]	6.215 [1.463]	41.38* [1.944]
Both Foreign vs Foreign Single	1.847 [0.865]	2.965 [1.382]	3.997 [1.178]	37.045** [1.971]
Socio-economic peer, same continent (2-7)	1-10	11-20	21-30	30+
Foreign Sing vs UK-Foreign	3.429** [2.487]	2.636* [1.765]	3.063* [1.723]	2.253 [0.87]
Both Foreign vs UK-Foreign	1.146 [0.209]	1.383 [0.431]	2.654 [0.829]	20.015 [1.64]
Both Foreign vs Foreign Single	0.334* [-1.834]	0.525 [-0.943]	0.866 [-0.13]	8.883 [1.254]

Table exhibits the change of odd ratios generated by peer group variable in spline. A ratio larger than 1 indicates that the nominator category has a higher likelihood to be true than denominator category being true, given the change of independent variable. Z-statistics is shown in brackets, and *** p<0.01, ** p<0.05, * p<0.1.

Table 8 Peer Effect (London)

Peer Group	2-8 Home Peer		2-9 Same Continent		2-10 Economic-resembling		2-11 "Trait"		2-12 Cultural-resembling		2-13 Socia-economic		2-14 Socio-economic and geographic	
	UK_For eign	both_For eign	UK_For eign	both_For eign	UK_For eign	both_For eign	UK_For eign	both_For eign	UK_Forei gn	both_Forei gn	UK_For eign	both_Forei gn	UK_For eign	both_Forei gn
							-							
16-30	0.334 [0.981]	0.027 [0.084]	0.057 [0.095]	0.366 [0.628]	-0.183 [-0.363]	-0.882** [-2.146]	1.573** *	-0.515 [-1.308]	-0.994*** [-2.614]	-0.665** [-2.175]	0.636 [1.174]	1.282** [2.144]	-0.005 [-0.014]	-0.345 [-1.143]
31-45	0.552** [2.162]	-0.290 [-1.140]	0.078 [0.143]	-0.459 [-0.810]	-0.237 [-0.509]	-0.761** [-2.088]	0.716** [-2.018]	-0.955*** [-3.077]	0.380 [1.105]	-0.669* [-1.906]	-0.426 [-0.794]	0.934 [1.569]	0.042 [0.118]	-0.859** [-2.564]
46-60	0.691* [1.807]	0.045 [0.123]	-0.575 [-1.180]	-0.293 [-0.602]	0.092 [0.192]	-1.166*** [-3.021]	-0.086 [-0.228]	-1.141*** [-3.237]	-0.467 [-1.630]	-0.966*** [-3.602]	-0.168 [-0.346]	0.812 [1.467]	-0.302 [-0.874]	-1.064*** [-3.435]
61-75			-0.414 [-0.794]	-0.218 [-0.424]	0.460 [0.703]	-0.579 [-0.956]	0.434 [0.685]	-0.568 [-0.944]	-0.391 [-1.071]	-0.467 [-1.401]	-0.260 [-0.499]	0.925 [1.583]	-0.249 [-0.593]	-0.622* [-1.660]
76-90			-0.864 [-1.417]	-0.456 [-0.721]	0.418 [0.328]	0.206 [0.241]					-1.063 [-0.868]	0.377 [0.450]		
91-105			-1.180* [-1.931]	-0.115 [-0.209]										
105+			1.619** [-2.494]	-0.447 [-0.776]										
Investor capital group														
Institutional	0.686** [2.404]	1.364*** [4.273]	0.435 [1.594]	1.371*** [4.536]	0.482* [1.781]	1.364*** [4.499]	0.555** [2.004]	1.235*** [4.032]	0.472* [1.675]	1.149*** [3.689]	0.304 [1.114]	1.426*** [4.689]	0.377 [1.368]	1.163*** [3.765]
Investment Manager	-0.351 [-1.183]	0.981*** [3.098]	-0.499* [-1.664]	0.967*** [3.067]	-0.392 [-1.324]	0.942*** [2.992]	-0.402 [-1.349]	0.953*** [3.031]	-0.452 [-1.519]	0.833*** [2.627]	-0.450 [-1.513]	0.972*** [3.075]	-0.429 [-1.446]	0.906*** [2.862]
Private	-0.519 [-1.556]	0.398 [1.116]	-0.620* [-1.835]	0.322 [0.899]	0.690** [-2.075]	0.296 [0.827]	-0.630* [-1.851]	0.157 [0.434]	-0.687** [-2.001]	0.104 [0.286]	-0.789** [-2.336]	0.422 [1.180]	-0.759** [-2.241]	0.081 [0.223]
Public	-0.070 [-0.184]	0.793** [2.128]	-0.438 [-1.117]	0.768** [2.064]	-0.315 [-0.804]	0.603 [1.587]	-0.278 [-0.703]	0.521 [1.370]	-0.515 [-1.347]	0.502 [1.342]	-0.423 [-1.159]	0.852** [2.358]	-0.481 [-1.258]	0.499 [1.320]
Broker involvement	-0.334 [-1.635]	-0.435** [-2.303]	-0.382* [-1.844]	-0.454** [-2.373]	-0.341* [-1.664]	-0.430** [-2.245]	-0.374* [-1.809]	-0.460** [-2.399]	-0.338 [-1.645]	-0.439** [-2.297]	-0.339* [-1.653]	-0.425** [-2.241]	-0.334 [-1.630]	-0.438** [-2.291]
ln(Size)	-0.057 [-0.605]	0.499*** [5.071]	-0.089 [-0.940]	0.507*** [5.117]	-0.072 [-0.772]	0.515*** [5.171]	-0.088 [-0.936]	0.493*** [4.974]	-0.058 [-0.618]	0.513*** [5.198]	-0.067 [-0.710]	0.520*** [5.244]	-0.071 [-0.763]	0.511*** [5.158]
Age	0.014** [2.106]	-0.008 [-1.437]	0.014** [1.982]	-0.009 [-1.513]	0.014** [2.086]	-0.009 [-1.513]	0.014** [2.004]	-0.009 [-1.534]	0.014** [1.995]	-0.009 [-1.606]	0.015** [2.171]	-0.008 [-1.385]	0.015** [2.157]	-0.009 [-1.591]
Age^2	-0.000* [-1.886]	0.000 [0.706]	-0.000* [-1.836]	0.000 [0.806]	-0.000* [-1.867]	0.000 [0.791]	-0.000* [-1.841]	0.000 [0.841]	-0.000* [-1.815]	0.000 [0.852]	-0.000* [-1.918]	0.000 [0.705]	-0.000* [-1.925]	0.000 [0.834]

	2-8 Home Peer		2-9 Same Continent		2-10 Economic-resembling		2-11 "Trait"		2-12 Cultural-resembling		2-13 Socia-economic		2-14 Socio-economic and geographic	
	UK_For eign	both_For eign	UK_For eign	both_For eign	UK_For eign	both_For eign	UK_For eign	both_For eign	UK_Forei gn	both_Forei gn	UK_For eign	both_Forei gn	UK_For eign	both_Forei gn
fractional	0.266	0.518*	0.279	0.487	0.253	0.557*	0.247	0.462	0.272	0.499*	0.238	0.530*	0.289	0.507*
	[0.795]	[1.716]	[0.813]	[1.619]	[0.757]	[1.817]	[0.734]	[1.521]	[0.801]	[1.651]	[0.702]	[1.753]	[0.853]	[1.673]
Property sectors														
Office	0.215	-0.289	0.134	-0.252	0.193	-0.364	0.212	-0.379	0.288	-0.277	0.109	-0.273	0.128	-0.317
	[0.423]	[-0.754]	[0.261]	[-0.661]	[0.380]	[-0.953]	[0.415]	[-0.993]	[0.561]	[-0.723]	[0.214]	[-0.715]	[0.251]	[-0.827]
Retail	0.723	-0.458	0.652	-0.471	0.707	-0.657	0.732	-0.594	0.868	-0.475	0.689	-0.486	0.722	-0.505
	[1.294]	[-0.942]	[1.156]	[-0.962]	[1.262]	[-1.329]	[1.303]	[-1.212]	[1.538]	[-0.968]	[1.232]	[-0.998]	[1.292]	[-1.028]
Constant	-1.864	-22.884	-1.203	-23.630	-1.221	-22.237	0.450	-21.943	-0.796	-22.238	-1.283	-25.156	-1.399	-22.506
	[-1.037]	[-0.053]	[-0.646]	[-0.036]	[-0.665]	[-0.052]	[0.239]	[-0.049]	[-0.439]	[-0.051]	[-0.689]	[-0.037]	[-0.770]	[-0.052]
Year FE	Controlled		Controlled		Controlled		Controlled		Controlled		Controlled		Controlled	
Region FE	Controlled		Controlled		Controlled		Controlled		Controlled		Controlled		Controlled	
Observations	1,004	1,004	1,004	1,004	1,004	1,004	1,002	1,002	1,004	1,004	1,004	1,004	1,004	1,004
Log Likelihood	-771.1	-771.1	-765	-765	-768.4	-768.4	-761.1	-761.1	-762.4	-762.4	-769.2	-769.2	-767.3	-767.3
LR Chi2	163.2	163.2	175.2	175.2	168.4	168.4	181.5	181.5	180.5	180.5	166.9	166.9	170.8	170.8
p-R2	0.0957	0.0957	0.103	0.103	0.0988	0.0988	0.107	0.107	0.106	0.106	0.0979	0.0979	0.100	0.100
AIC	1650	1650	1654	1654	1653	1653	1634	1634	1637	1637	1654	1654	1647	1647

The table exhibits the multinomial logit result of peer influence. Base group is single foreign investors. For the explanatory factor variables, base categories of submarket, investor capital types and property sector are city core, equity fund, and industrial. Probability of explanatory variables can be derived by $\exp(\beta)/(1+\exp(\beta))$, where β stands for coefficients. Z-statistics is shown in brackets, and *** p<0.01, ** p<0.05, * p<0.1.

Table 9 Change of odd ratios (London, Peer effect)

Home Peer (2-8)	16-30	31-45	45+				
Foreign Sing vs UK-Foreign	0.716	0.576**	0.501*				
	[-0.981]	[-2.162]	[-1.807]				
Both Foreign vs UK-Foreign	0.736	0.431**	0.524				
	[-0.715]	[-2.551]	[-1.404]				
Both Foreign vs Foreign Single	1.028	0.748	1.046				
	[0.084]	[-1.14]	[0.123]				

<i>Cultural-resembling peer (2-12)</i>	16-30	31-45	46-60	60+			
Foreign Sing vs UK-Foreign	2.702***	0.684	1.595	1.479			
	[2.614]	[-1.105]	[1.63]	[1.071]			
Both Foreign vs UK-Foreign	1.39	0.35**	0.607	0.927			
	[0.747]	[-2.412]	[-1.408]	[-0.174]			
Both Foreign vs Foreign Single	0.514**	0.512*	0.381***	0.627			
	[-2.175]	[-1.906]	[-3.602]	[-1.401]			

<i>Socio-economic peer (2-13)</i>	16-30	31-45	46-60	61-75	75+		
Foreign Sing vs UK-Foreign	0.53	1.531	1.183	1.296	2.896		
	[-1.174]	[0.794]	[0.346]	[0.499]	[0.868]		
Both Foreign vs UK-Foreign	1.908	3.898*	2.665	3.268	4.223		
	[0.881]	[1.833]	[1.432]	[1.635]	[1.026]		
Both Foreign vs Foreign Single	3.604**	2.545	2.252	2.521	1.458		
	[2.144]	[1.569]	[1.467]	[1.583]	[0.45]		

<i>Peer from same continent(2-9)</i>	16-30	31-45	46-60	61-75	76-90	91-105	105+
Foreign Sing vs UK-Foreign	0.945	0.925	1.776	1.512	2.373	3.255*	5.047*
	[-0.095]	[-0.143]	[1.18]	[0.794]	[1.417]	[1.931]	[2.494]
Both Foreign vs UK-Foreign	1.362	0.585	1.325	1.216	1.505	2.9	3.229
	[0.428]	[-0.775]	[0.47]	[0.306]	[0.523]	[1.463]	[1.522]
Both Foreign vs Foreign Single	1.442	0.632	0.746	0.804	0.634	0.891	0.64
	[0.628]	[-0.81]	[-0.602]	[-0.424]	[-0.721]	[-0.209]	[-0.776]

<i>Economic-resembling (2-10)</i>	16-30	31-45	46-60	61-75	75+		
Foreign Sing vs UK-Foreign	1.201	1.267	0.912	0.631	0.658		
	[0.36]	[0.509]	[-0.192]	[-0.703]	[-0.328]		
Both Foreign vs UK-Foreign	0.497	0.592	0.284**	0.354	0.808		
	[-1.20]	[-1.00]	[-2.312]	[-1.349]	[-0.154]		
Both Foreign vs Foreign Single	0.414**	0.467**	0.312***	0.56	1.228		
	[-2.15]	[-2.088]	[-3.021]	[-0.956]	[0.241]		

<i>Trait (2-11)</i>	16-30	31-45	46-60	61-75			
Foreign Sing vs UK-Foreign	4.821***	2.046**	1.09	0.648			
	[3.004]	[2.018]	[0.228]	[-0.685]			
Both Foreign vs UK-Foreign	2.881*	0.787	0.348**	0.367			
	[1.786]	[-0.577]	[-2.314]	[-1.351]			
Both Foreign vs Foreign Single	0.598	0.385***	0.319***	0.567			
	[-1.308]	[-3.077]	[-3.237]	[-0.944]			

<i>Socio-economic peer, same continent (2-14)</i>	16-30	31-45	46-60	60+			
Foreign Sing vs UK-Foreign	1.005	0.958	1.353	1.283			
	[0.014]	[-0.118]	[0.874]	[0.593]			
Both Foreign vs UK-Foreign	0.712	0.406**	0.467	0.689			
	[-0.831]	[-2.058]	[-1.822]	[-0.744]			
Both Foreign vs Foreign Single	0.708	0.424**	0.345***	0.537*			
	[-1.143]	[-2.564]	[-3.435]	[-1.66]			

Table exhibits the change of odd ratios generated by peer group variable in spline. A ratio larger than 1 indicates that the nominator category has a higher likelihood to be true than denominator category being true, given the change of independent variable. Z-statistics is shown in brackets, and *** p<0.01, ** p<0.05, * p<0.1.

Table 10 Peer effect and submarket selection (Non-London)

Peer Group	3-1 Home Peer		3-2 Same Continent		3-3 Economic-resembling		3-4 "Trait"		3-5 Cultural-resembling		3-6 Socia-economic		3-7 Socio-economic and geographic	
	UK_For eign	both_For eign	UK_For eign	both_For eign	UK_For eign	both_For eign	UK_For eign	both_For eign	UK_For eign	both_For eign	UK_For eign	both_For eign	UK_Forei gn	both_Forei gn
					-							-		
1-10 peers	-0.176	-0.020	-1.167	-0.392	1.138**	-0.207	-0.445	0.629	-0.434	-0.602	-1.172	2.891***	-1.154**	-1.071*
	[-0.456]	[-0.043]	[-1.479]	[-0.384]	[-2.133]	[-0.299]	[-1.014]	[0.876]	[-0.987]	[-1.156]	[-1.357]	[-2.802]	[-2.288]	[-1.774]
10-20 peers	-0.350	0.465	-1.210	-0.123	-0.905	0.183	-0.176	1.212	-0.281	-0.128	-1.276	-2.345**	-0.949*	-0.582
	[-0.701]	[0.731]	[-1.455]	[-0.113]	[-1.539]	[0.226]	[-0.364]	[1.515]	[-0.560]	[-0.206]	[-1.451]	[-2.205]	[-1.701]	[-0.836]
20-30 peers	-0.247	0.949	-1.246	0.711	-0.985	0.628	-0.364	1.387	-0.392	0.231	-1.228	-2.742**	-1.011	-0.185
	[-0.409]	[0.868]	[-1.443]	[0.593]	[-1.452]	[0.536]	[-0.591]	[1.169]	[-0.633]	[0.213]	[-1.380]	[-2.314]	[-1.547]	[-0.166]
30+ peers	-0.194	3.729**	-1.314	2.914	-0.971	3.126*	-0.385	3.828**	-0.440	2.680	-1.285	0.830	-1.047	2.285
	[-0.207]	[2.092]	[-1.168]	[1.495]	[-1.000]	[1.736]	[-0.413]	[2.094]	[-0.474]	[1.550]	[-1.140]	[0.481]	[-1.096]	[1.317]
Submarkets														
City Fringe	-0.065	-0.410	-0.059	-0.383	-0.070	-0.420	-0.058	-0.414	-0.079	-0.419	-0.077	-0.338	-0.129	-0.421
	[-0.168]	[-0.848]	[-0.153]	[-0.793]	[-0.182]	[-0.867]	[-0.150]	[-0.859]	[-0.205]	[-0.866]	[-0.202]	[-0.700]	[-0.331]	[-0.868]
Regional Centre	-0.014	-0.982	-0.131	-0.714	-0.144	-0.978	-0.183	-0.865	-0.126	-0.762	-0.082	-0.606	-0.161	-0.777
	[-0.034]	[-1.551]	[-0.309]	[-1.197]	[-0.335]	[-1.551]	[-0.427]	[-1.426]	[-0.299]	[-1.278]	[-0.194]	[-1.032]	[-0.379]	[-1.308]
Suburban	0.722*	-0.228	0.759**	-0.227	0.665*	-0.262	0.680*	-0.355	0.692*	-0.312	0.722*	-0.390	0.642*	-0.321
	[1.930]	[-0.438]	[2.039]	[-0.437]	[1.764]	[-0.503]	[1.797]	[-0.686]	[1.846]	[-0.601]	[1.930]	[-0.734]	[1.705]	[-0.616]
Investor capital group														
Institutional	-0.644	1.851***	-0.548	1.411**	-0.572	1.763***	-0.549	1.548***	-0.553	1.370**	-0.530	1.048*	-0.579	1.385**
	[-1.545]	[2.842]	[-1.430]	[2.410]	[-1.446]	[2.825]	[-1.411]	[2.591]	[-1.400]	[2.281]	[-1.366]	[1.846]	[-1.467]	[2.319]
Investment Manager	-0.388	0.257	-0.400	0.075	-0.369	0.278	-0.364	0.066	-0.383	0.006	-0.381	-0.155	-0.365	0.033
	[-1.214]	[0.416]	[-1.246]	[0.128]	[-1.145]	[0.451]	[-1.139]	[0.112]	[-1.193]	[0.009]	[-1.186]	[-0.273]	[-1.138]	[0.056]
Private	-0.601	0.778	-0.679	0.517	-0.683	0.757	-0.557	0.771	-0.582	0.483	-0.575	0.301	-0.672	0.425
	[-1.363]	[1.056]	[-1.555]	[0.735]	[-1.551]	[1.028]	[-1.242]	[1.069]	[-1.330]	[0.679]	[-1.335]	[0.437]	[-1.528]	[0.595]
Public	2.054**	1.696**	2.151**	1.454**	2.299**	1.688**	1.976**	1.606**	2.070**	1.401**	2.314**	1.113*	-2.306***	1.320**
	*		*		*		*		*		*			
	[-3.119]	[2.509]	[-3.255]	[2.246]	[-3.244]	[2.494]	[-3.046]	[2.461]	[-3.118]	[2.177]	[-3.227]	[1.816]	[-3.302]	[2.038]
Broker involvement	-0.117	0.778*	-0.124	0.722*	-0.115	0.756*	-0.096	0.775*	-0.117	0.734*	-0.127	0.674*	-0.140	0.699*
	[-0.446]	[1.914]	[-0.472]	[1.784]	[-0.435]	[1.861]	[-0.364]	[1.917]	[-0.448]	[1.828]	[-0.482]	[1.696]	[-0.534]	[1.737]

	3-1 Home Peer		3-2 Same Continent		3-3 Economic-resembling		3-4 "Trait"		3-5 Cultural-resembling		3-6 Socia-economic		3-7 Socio-economic and geographic	
	UK_For eign	both_For eign	UK_For eign	both_For eign	UK_For eign	both_For eign	UK_For eign	both_For eign	UK_For eign	both_For eign	UK_For eign	both_For eign	UK_Forei gn	both_Forei gn
In(Size)	0.369** *	0.322*	0.394** *	0.335*	0.384** *	0.339*	0.380** *	0.314	0.388** *	0.320*	0.394** *	0.308	0.393***	0.327*
	[2.689]	[1.654]	[2.869]	[1.722]	[2.750]	[1.740]	[2.757]	[1.639]	[2.822]	[1.661]	[2.866]	[1.594]	[2.830]	[1.681]
Age	0.033**	0.051**	0.035**	0.057**	0.035**	0.051**	0.031**	0.054**	0.032**	0.054**	0.033**	0.062**	0.033**	0.055**
	[2.237]	[2.233]	[2.378]	[2.542]	[2.383]	[2.223]	[2.144]	[2.378]	[2.190]	[2.356]	[2.260]	[2.523]	[2.227]	[2.368]
Age^2	-0.000*	-0.001*	-0.000*	-0.001**	-0.000*	-0.001*	-0.000*	-0.001**	-0.000*	-0.001**	-0.000*	-0.001**	-0.000*	-0.001**
	[-1.774]	[-1.905]	[-1.853]	[-2.123]	[-1.909]	[-1.884]	[-1.705]	[-1.988]	[-1.764]	[-1.977]	[-1.821]	[-2.091]	[-1.831]	[-1.986]
fractional	0.920	16.013	0.959*	15.815	1.049*	16.060	0.928*	15.684	0.954*	15.959	0.927*	15.837	0.999*	15.791
	[1.639]	[0.016]	[1.697]	[0.015]	[1.827]	[0.016]	[1.647]	[0.015]	[1.689]	[0.016]	[1.646]	[0.015]	[1.768]	[0.016]
Property sectors														
Office	-0.151	-0.115	-0.121	-0.218	-0.106	-0.098	-0.139	-0.193	-0.126	-0.183	-0.144	-0.302	-0.120	-0.141
	[-0.369]	[-0.195]	[-0.297]	[-0.370]	[-0.259]	[-0.166]	[-0.340]	[-0.329]	[-0.310]	[-0.313]	[-0.353]	[-0.513]	[-0.292]	[-0.239]
Retail	0.840** *	0.887*	0.937** *	0.916*	0.931** *	0.964**	0.879** *	0.936*	0.873** *	0.950**	0.855** *	0.949**	0.919***	0.972**
	[2.669]	[1.822]	[2.959]	[1.899]	[2.934]	[1.995]	[2.776]	[1.936]	[2.764]	[1.987]	[2.705]	[1.970]	[2.887]	[2.028]
Constant	7.967** *	-72.007	7.276**	-56.039	7.390**	-72.234	7.928** *	-56.195	8.206** *	-55.589	7.678** *	-51.923	-7.628***	-54.678
	[-2.696]	[-0.019]	[-2.461]	[-0.018]	[-2.520]	[-0.020]	[-2.741]	[-0.018]	[-2.857]	[-0.018]	[-2.603]	[-0.016]	[-2.635]	[-0.018]
Year FE	Controll ed		Controll ed		Controll ed		Controll ed		Controll ed		Controll ed		Controlled	
Region FE	Controll ed		Controll ed		Controll ed		Controll ed		Controll ed		Controll ed		Controlled	
Observations	523		535		530		529		529		532		529	
Log Likelihood	-358.3		-365.5		-359.3		-362.7		-363.8		-363.4		-361.4	
LR Chi2	148.8		156.4		159.1		150.6		148.5		155.4		153.2	
p-R2	0.172		0.176		0.181		0.172		0.170		0.176		0.175	
AIC	848.6		863.1		850.5		857.4		859.5		858.8		854.9	

The table exhibits the multinomial logit result of peer influence. Base group is single foreign investors. For the explanatory factor variables, base categories of submarket, investor capital types and property sector are city core, equity fund, and industrial. Probability of explanatory variables can be derived by $\exp(\beta)/(1+\exp(\beta))$, where β stands for coefficients. Z-statistics is shown in brackets, and *** p<0.01, ** p<0.05, * p<0.1.

Table 11 Change of odd ratios (peer effect & submarket; Non-London)

Home Peer (3-1)	1-10	11-20	21-30	30+
Foreign Sing vs UK-Foreign	1.192 [0.456]	1.42 [0.701]	1.28 [0.409]	1.214 [0.207]
Both Foreign vs UK-Foreign	1.168 [0.288]	2.261 [1.114]	3.307 [1.018]	50.527** [2.103]
Both Foreign vs Foreign Single	0.98 [-0.043]	1.593 [0.731]	2.584 [0.868]	41.628** [2.092]

Home Peer (3-1)	City Fringe	Regional Core	Suburban
Foreign Sing vs UK-Foreign	1.067 [0.168]	1.014 [0.034]	0.486* [-1.93]
Both Foreign vs UK-Foreign	0.708 [-0.612]	0.38 [-1.378]	0.387 [-1.634]
Both Foreign vs Foreign Single	0.664 [-0.848]	0.374 [-1.551]	0.796 [-0.438]

Economic-resembling (3-3)	1-10	11-20	21-30	30+
Foreign Sing vs UK-Foreign	3.122** [2.133]	2.472 [1.539]	2.677 [1.452]	2.641 [1.000]
Both Foreign vs UK-Foreign	2.538 [1.211]	2.969 [1.214]	5.013 [1.283]	60.181** [2.15]
Both Foreign vs Foreign Single	0.813 [-0.299]	1.201 [0.226]	1.873 [0.536]	22.789 [1.736]

Economic-resembling (3-3)	City Fringe	Regional Core	Suburban
Foreign Sing vs UK-Foreign	1.073 [0.182]	1.155 [0.335]	0.514* [-1.764]
Both Foreign vs UK-Foreign	0.705 [-0.62]	0.434 [-1.19]	0.396 [-1.593]
Both Foreign vs Foreign Single	0.657 [-0.867]	0.376 [-1.551]	0.769 [-0.503]

Same Continent (3-2)	1-10	11-20	21-30	30+
Foreign Sing vs UK-Foreign	3.212 [1.479]	3.355 [1.455]	3.476 [1.443]	3.722 [1.168]
Both Foreign vs UK-Foreign	2.171 [0.668]	2.967 [0.879]	7.08 [1.453]	68.586** [2.024]
Both Foreign vs Foreign Single	0.676 [-0.384]	0.885 [-0.113]	2.037 [0.593]	18.425 [1.495]

Same Continent (3-2)	City Fringe	Regional Core	Suburban
Foreign Sing vs UK-Foreign	1.061 [0.153]	1.14 [0.309]	0.468** [-2.039]
Both Foreign vs UK-Foreign	0.723 [-0.576]	0.558 [-0.873]	0.373* [-1.707]
Both Foreign vs Foreign Single	0.682 [-0.793]	0.49 [-1.197]	0.797 [-0.437]

"Trait" (3-4)	1-10	11-20	21-30	30+
Foreign Sing vs UK-Foreign	1.56 [1.014]	1.193 [0.364]	1.439 [0.591]	1.469 [0.413]
Both Foreign vs UK-Foreign	2.926 [1.367]	4.007 [1.599]	5.762 [1.388]	67.568** [2.191]
Both Foreign vs Foreign Single	1.875 [0.876]	3.359 [1.515]	4.005 [1.169]	45.99** [2.094]

"Trait" (3-4)	City Fringe	Regional Core	Suburban
Foreign Sing vs UK-Foreign	1.059 [0.15]	1.201 [0.427]	0.507* [-1.797]
Both Foreign vs UK-Foreign	0.7 [-0.634]	0.506 [-1.002]	0.355* [-1.787]
Both Foreign vs Foreign Single	0.661 [-0.859]	0.421 [-1.426]	0.701 [-0.686]

Cultural-resembling (3-5)	1-10	11-20	21-30	30+
Foreign Sing vs UK-Foreign	1.543 [0.987]	1.325 [0.56]	1.48 [0.633]	1.552 [0.474]
Both Foreign vs UK-Foreign	0.845 [-0.281]	1.165 [0.215]	1.864 [0.536]	22.634* [1.708]
Both Foreign vs Foreign Single	0.548 [-1.156]	0.88 [-0.206]	1.26 [0.213]	14.58 [1.55]

Social-economic resembling (3-6)	1-10	11-20	21-30	30+
Foreign Sing vs UK-Foreign	3.229 [1.357]	3.583 [1.451]	3.415 [1.38]	3.616 [1.14]
Both Foreign vs UK-Foreign	0.179 [-1.494]	0.343 [-0.896]	0.22 [-1.167]	8.295 [1.143]
Both Foreign vs Foreign Single	0.056** [-2.802]	0.096** [-2.205]	0.064** [-2.314]	2.294 [0.481]

Cultural-resembling (3-5)	City Fringe	Regional Core	Suburban
Foreign Sing vs UK-Foreign	1.082 [0.205]	1.135 [0.299]	0.501* [-1.846]
Both Foreign vs UK-Foreign	0.712 [-0.604]	0.53 [-0.95]	0.366* [-1.735]
Both Foreign vs Foreign Single	0.658 [-0.866]	0.467 [-1.278]	0.732 [-0.601]

Social-economic resembling (3-6)	City Fringe	Regional Core	Suburban
Foreign Sing vs UK-Foreign	1.08 [0.202]	1.085 [0.194]	0.486* [-1.93]
Both Foreign vs UK-Foreign	0.77 [-0.466]	0.592 [-0.796]	0.329* [-1.895]
Both Foreign vs Foreign Single	0.713 [-0.7]	0.546 [-1.032]	0.677 [-0.734]

Social-economic resembling, same continent (3-7)	1-10	11-20	21-30	30+
Foreign Sing vs UK-Foreign	3.171** [2.288]	2.584* [1.701]	2.748 [1.547]	2.848 [1.096]
Both Foreign vs UK-Foreign	1.087 [0.125]	1.443 [0.477]	2.284 [0.697]	27.989* [1.82]
Both Foreign vs Foreign Single	0.343* [-1.774]	0.559 [-0.836]	0.831 [-0.166]	9.827 [1.317]

Social-economic resembling, same continent (3-7)	City Fringe	Regional Core	Suburban
Foreign Sing vs UK-Foreign	1.137 [0.331]	1.174 [0.379]	0.526* [-1.705]
Both Foreign vs UK-Foreign	0.747 [-0.518]	0.54 [-0.925]	0.382* [-1.662]
Both Foreign vs Foreign Single	0.656 [-0.868]	0.46 [-1.308]	0.726 [-0.616]

Table exhibits the change of odd ratios generated by peer group variable in spline, and submarket. A ratio larger than 1 indicates that the nominator category has a higher likelihood to be true than denominator category being true, given the change of independent variable. Z-statistics is shown in brackets, and *** p<0.01, ** p<0.05, * p<0.1.

Table 12 Peer effect and submarket selection (London)

Peer Group	3-8 Home Peer		3-9 Same Continent		3-10 Economic-resembling		3-11 "Trait"		3-12 Cultural-resembling		3-13 Socia-economic		3-14 Socio-economic and geographic	
	UK_For eign	both_For eign	UK_For eign	both_For eign	UK_For eign	both_For eign	UK_For eign	both_For eign	UK_For eign	both_For eign	UK_For eign	both_For eign	UK_Forei gn	both_Foreig n
16-30	0.390 [1.137]	0.012 [0.035]	0.269 [0.443]	0.281 [0.477]	-0.142 [-0.279]	-0.908** [-2.199]	1.463** *	-0.539 [-1.364]	0.993** *	-0.665** [-2.166]	0.770 [1.395]	1.279** [2.133]	0.037 [0.104]	-0.351 [-1.160]
31-45	0.526** [2.037]	-0.275 [-1.072]	0.144 [0.260]	-0.485 [-0.858]	-0.238 [-0.508]	-0.755** [-2.069]	-0.697* [-1.957]	0.964*** [-3.095]	0.332 [0.958]	-0.662* [-1.887]	-0.354 [-0.648]	0.967 [1.617]	0.032 [0.089]	-0.865*** [-2.578]
46-60	0.771** [1.994]	0.038 [0.103]	-0.421 [-0.849]	-0.335 [-0.686]	0.102 [0.213]	1.175*** [-3.031]	-0.069 [-0.181]	1.142*** [-3.228]	-0.420 [-1.456]	0.967*** [-3.597]	-0.097 [-0.196]	0.845 [1.518]	-0.233 [-0.672]	-1.071*** [-3.442]
61-75			-0.264 [-0.498]	-0.261 [-0.506]	0.529 [0.801]	-0.567 [-0.936]	0.505 [0.792]	-0.562 [-0.934]	-0.360 [-0.982]	-0.461 [-1.381]	-0.154 [-0.290]	0.973* [1.659]	-0.186 [-0.441]	-0.618* [-1.647]
76-90			-0.729 [-1.179]	-0.517 [-0.815]	0.542 [0.419]	0.178 [0.209]					-0.987 [-0.798]	0.413 [0.492]		
91-105			-1.036* [-1.672]	-0.155 [-0.279]										
105+			1.527** [-2.336]	-0.486 [-0.844]										
Submarkets														
Inner London	1.056** [2.235]	-0.126 [-0.240]	1.018** [2.091]	-0.104 [-0.198]	1.013** [2.152]	-0.129 [-0.245]	0.994** [2.093]	-0.064 [-0.122]	0.852* [1.781]	-0.203 [-0.383]	1.014** [2.156]	-0.150 [-0.284]	0.939** [1.994]	-0.122 [-0.231]
Outer London	0.638** [2.381]	-0.192 [-0.645]	0.601** [2.220]	-0.215 [-0.715]	0.655** [2.469]	-0.251 [-0.832]	0.556** [2.075]	-0.232 [-0.771]	0.630** [2.360]	-0.204 [-0.685]	0.672** [2.524]	-0.227 [-0.768]	0.632** [2.385]	-0.245 [-0.819]
Investor capital group														
Institutional	0.638** [2.231]	1.375*** [4.291]	0.382 [1.393]	1.389*** [4.574]	0.437 [1.609]	1.386*** [4.549]	0.507* [1.827]	1.250*** [4.066]	0.431 [1.523]	1.165*** [3.723]	0.258 [0.945]	1.450*** [4.742]	0.339 [1.227]	1.181*** [3.807]
Investment Manager	-0.455 [-1.510]	1.003*** [3.150]	-0.594* [-1.954]	0.993*** [3.133]	-0.492 [-1.640]	0.971*** [3.064]	-0.496 [-1.644]	0.981*** [3.100]	-0.541* [-1.796]	0.860*** [2.695]	-0.547* [-1.817]	1.004*** [3.155]	-0.518* [-1.727]	0.934*** [2.932]
Private	-0.503 [-1.500]	0.384 [1.073]	-0.611* [-1.798]	0.314 [0.877]	0.672** [-2.013]	0.285 [0.795]	-0.607* [-1.777]	0.144 [0.397]	-0.654* [-1.893]	0.092 [0.253]	0.769** [-2.263]	0.418 [1.166]	-0.727** [-2.134]	0.064 [0.175]
Public	-0.168 [-0.434]	0.823** [2.194]	-0.502 [-1.272]	0.796** [2.132]	-0.409 [-1.033]	0.642* [1.680]	-0.365 [-0.913]	0.547 [1.431]	-0.578 [-1.505]	0.539 [1.432]	-0.513 [-1.389]	0.893** [2.454]	-0.541 [-1.406]	0.529 [1.394]
Broker involvement	-0.294	-0.448**	-0.345*	-0.464**	-0.303	-0.446**	-0.340	-0.472**	-0.303	-0.454**	-0.300	-0.441**	-0.300	-0.451**

	3-8 Home Peer		3-9 Same Continent		3-10 Economic-resembling		3-11 "Trait"		3-12 Cultural-resembling		3-13 Socio-economic		3-14 Socio-economic and geographic	
	UK_For eign	both_For eign	UK_For eign	both_For eign	UK_For eign	both_For eign	UK_For eign	both_For eign	UK_For eign	both_For eign	UK_For eign	both_For eign	UK_Forei gn	both_Forei gn
In(Size)	[-1.425]	[-2.357]	[-1.650]	[-2.416]	[-1.465]	[-2.316]	[-1.632]	[-2.449]	[-1.462]	[-2.362]	[-1.449]	[-2.308]	[-1.452]	[-2.343]
	-0.073	0.505***	-0.099	0.513***	-0.087	0.521***	-0.100	0.497***	-0.067	0.519***	-0.076	0.527***	-0.082	0.516***
Age	[-0.774]	[5.104]	[-1.048]	[5.154]	[-0.931]	[5.210]	[-1.063]	[5.000]	[-0.715]	[5.231]	[-0.814]	[5.287]	[-0.881]	[5.190]
	0.015**	-0.009	0.014**	-0.009	0.015**	-0.009	0.015**	-0.009	0.014**	-0.010	0.016**	-0.008	0.016**	-0.009
Age^2	[2.234]	[-1.452]	[2.090]	[-1.523]	[2.213]	[-1.524]	[2.140]	[-1.553]	[2.119]	[-1.622]	[2.305]	[-1.391]	[2.293]	[-1.613]
	-0.000*	0.000	-0.000*	0.000	-0.000*	0.000	-0.000*	0.000	-0.000*	0.000	-0.000*	0.000	-0.000**	0.000
fractional	[-1.929]	[0.702]	[-1.864]	[0.796]	[-1.908]	[0.778]	[-1.888]	[0.839]	[-1.848]	[0.847]	[-1.955]	[0.692]	[-1.967]	[0.830]
	0.245	0.527*	0.241	0.500*	0.238	0.572*	0.234	0.474	0.257	0.501*	0.231	0.541*	0.273	0.517*
	[0.734]	[1.733]	[0.710]	[1.653]	[0.713]	[1.857]	[0.699]	[1.553]	[0.759]	[1.647]	[0.684]	[1.778]	[0.807]	[1.696]
Property sectors														
Office	0.708	-0.437	0.598	-0.420	0.710	-0.562	0.650	-0.557	0.770	-0.442	0.633	-0.450	0.622	-0.510
	[1.305]	[-0.974]	[1.090]	[-0.936]	[1.303]	[-1.245]	[1.187]	[-1.240]	[1.402]	[-0.978]	[1.162]	[-1.007]	[1.145]	[-1.132]
Retail	0.907	-0.511	0.820	-0.540	0.907	-0.738	0.889	-0.663	1.047*	-0.538	0.892	-0.552	0.911	-0.580
	[1.605]	[-1.023]	[1.438]	[-1.074]	[1.600]	[-1.450]	[1.563]	[-1.322]	[1.836]	[-1.068]	[1.575]	[-1.106]	[1.611]	[-1.152]
Constant	-2.208	-22.813	-1.635	-22.643	-1.633	-22.122	0.005	-23.446	-1.200	-22.134	-1.849	-24.237	-1.836	-22.387
	[-1.224]	[-0.053]	[-0.874]	[-0.054]	[-0.885]	[-0.051]	[0.003]	[-0.023]	[-0.660]	[-0.051]	[-0.986]	[-0.055]	[-1.004]	[-0.052]
Year FE	Controll ed		Controll ed		Controll ed		Controll ed		Controll ed		Controll ed		Controlled	
Region FE	Controll ed		Controll ed		Controll ed		Controll ed		Controll ed		Controll ed		Controlled	
Observations	1,004		1,004		1,004		1,002		1,004		1,004		1,004	
Log Likelihood	-766		-760.5		-763.1		-756.9		-757.9		-763.9		-762.4	
LR Chi2	173.2		184.2		179.1		190		189.5		177.6		180.6	
p-R2	0.102		0.108		0.105		0.112		0.111		0.104		0.106	
AIC	1648		1653		1650		1634		1636		1652		1645	

The table exhibits the multinomial logit result of peer influence. Base group is single foreign investors. For the explanatory factor variables, base categories of submarket, investor capital types and property sector are city core, equity fund, and industrial. Probability of explanatory variables can be derived by $\exp(\beta)/(1+\exp(\beta))$, where β stands for coefficients. Z-statistics is shown in brackets, and *** p<0.01, ** p<0.05, * p<0.1.

Table 13 Change of odd ratios (peer effect & submarket; London)

Home Peer (3-8)	16-30	31-45	45+
Foreign Sing vs UK-Foreign	0.677 [-1.137]	0.591** [-2.037]	0.462** [-1.994]
Both Foreign vs UK-Foreign	0.685 [-0.875]	0.449** [-2.401]	0.48 [-1.58]
Both Foreign vs Foreign Single	1.012 [0.035]	0.76 [-1.072]	1.038 [0.103]

Home Peer (3-8)	Inner London	Outer London
Foreign Sing vs UK-Foreign	0.348** [-2.235]	0.529** [-2.381]
Both Foreign vs UK-Foreign	0.307* [-1.945]	0.436** [-2.312]
Both Foreign vs Foreign Single	0.882 [-0.24]	0.825 [-0.645]

Economic-resembling(3-10)	16-30	31-45	46-60	61-75	75+
Foreign Sing vs UK-Foreign	1.152 [0.279]	1.269 [0.508]	0.903 [-0.213]	0.589 [-0.801]	0.582 [-0.419]
Both Foreign vs UK-Foreign	0.465 [-1.303]	0.596 [-0.98]	0.279** [-2.339]	0.334 [-1.412]	0.696 [-0.262]
Both Foreign vs Foreign Single	0.403** [-2.199]	0.47** [-2.069]	0.309*** [-3.031]	0.567 [-0.936]	1.195 [0.209]

Economic-resembling(3-10)	Inner London	Outer London
Foreign Sing vs UK-Foreign	0.363** [-2.152]	0.52** [-2.469]
Both Foreign vs UK-Foreign	0.319* [-1.888]	0.404** [-2.521]
Both Foreign vs Foreign Single	0.879 [-0.245]	0.778 [-0.832]

Same Continent (3-9)	16-30	31-45	46-60	61-75	76-90	91-105
Foreign Sing vs UK-Foreign	0.764 [-0.443]	0.866 [-0.26]	1.523 [0.849]	1.302 [0.498]	2.073 [1.179]	2.819* [1.672]
Both Foreign vs UK-Foreign	1.012 [0.016]	0.533 [-0.902]	1.089 [0.141]	1.003 [0.005]	1.236 [0.268]	2.414 [1.2]
Both Foreign vs Foreign Single	1.325 [0.477]	0.616 [-0.858]	0.715 [-0.686]	0.77 [-0.506]	0.596 [-0.815]	0.856 [-0.279]

Same Continent(3-9)	Inner London	Outer London
Foreign Sing vs UK-Foreign	0.361** [-2.091]	0.548** [-2.22]
Both Foreign vs UK-Foreign	0.326* [-1.816]	0.442** [-2.255]
Both Foreign vs Foreign Single	0.901 [-0.198]	0.807 [-0.715]

"Trait" (3-11)	16-30	31-45	46-60	60+
Foreign Sing vs UK-Foreign	4.321*** [2.778]	2.008* [1.957]	1.071 [0.181]	0.603 [-0.792]
Both Foreign vs UK-Foreign	2.52 [1.549]	0.766 [-0.639]	0.342** [-2.339]	0.344 [-1.428]
Both Foreign vs Foreign Single	0.583 [-1.364]	0.381*** [-3.095]	0.319*** [-3.228]	0.57 [-0.934]

"Trait" (3-11)	Inner London	Outer London
Foreign Sing vs UK-Foreign	0.37** [-2.093]	0.573** [-2.075]
Both Foreign vs UK-Foreign	0.347* [-1.748]	0.455** [-2.192]
Both Foreign vs Foreign Single	0.938 [-0.122]	0.793 [-0.771]

<i>Cultural-resembling (3-12)</i>	<i>16-30</i>	<i>31-45</i>	<i>46-60</i>	<i>60+</i>
Foreign Sing vs UK-Foreign	2.7**	0.718	1.522	1.433
	[2.593]	[-0.958]	[1.456]	[0.982]
Both Foreign vs UK-Foreign	1.389	0.37**	0.579	0.904
	[0.738]	[-2.275]	[-1.532]	[-0.231]
Both Foreign vs Foreign Single	0.514**	0.516*	0.38***	0.631
	[-2.166]	[-1.887]	[-3.597]	[-1.381]

<i>Cultural-resembling (3-12)</i>	<i>Inner London</i>	<i>Outer London</i>
Foreign Sing vs UK-Foreign	0.427*	0.532**
	[-1.781]	[-2.36]
Both Foreign vs UK-Foreign	0.348*	0.434**
	[-1.729]	[-2.34]
Both Foreign vs Foreign Single	0.816	0.815
	[-0.383]	[-0.685]

<i>Socio-economic resembling, same continent (3-14)</i>	<i>16-30</i>	<i>31-45</i>	<i>46-60</i>	<i>60+</i>
Foreign Sing vs UK-Foreign	0.964	0.968	1.263	1.205
	[-0.104]	[-0.089]	[0.672]	[0.441]
Both Foreign vs UK-Foreign	0.679	0.408**	0.433**	0.649
	[-0.94]	[-2.036]	[-1.987]	[-0.857]
Both Foreign vs Foreign Single	0.704	0.421**	0.343***	0.539*
	[-1.16]	[-2.578]	[-3.442]	[-1.647]

<i>Socio-economic resembling, same continent (3-14)</i>	<i>Inner London</i>	<i>Outer London</i>
Foreign Sing vs UK-Foreign	0.391**	0.532**
	[-1.994]	[-2.385]
Both Foreign vs UK-Foreign	0.346*	0.416**
	[-1.75]	[-2.457]
Both Foreign vs Foreign Single	0.885	0.783
	[-0.231]	[-0.819]

<i>Socio-economic resembling (3-13)</i>	<i>16-30</i>	<i>31-45</i>	<i>46-60</i>	<i>61-75</i>	<i>75+</i>
Foreign Sing vs UK-Foreign	0.463	1.424	1.102	1.166	2.682
	[-1.395]	[0.648]	[0.196]	[0.29]	[0.798]
Both Foreign vs UK-Foreign	1.665	3.746*	2.564	3.085	4.054
	[0.683]	[1.753]	[1.354]	[1.531]	[0.989]
Both Foreign vs Foreign Single	3.594**	2.63	2.327	2.646*	1.511
	[2.133]	[1.617]	[1.518]	[1.659]	[0.492]

<i>Socio-economic resembling(3-13)</i>	<i>Inner London</i>	<i>Outer London</i>
Foreign Sing vs UK-Foreign	0.363**	0.511**
	[-2.156]	[-2.524]
Both Foreign vs UK-Foreign	0.312*	0.407**
	[-1.909]	[-2.52]
Both Foreign vs Foreign Single	0.861	0.797
	[-0.284]	[-0.768]

Table exhibits the change of odd ratios generated by peer group variable in spline, and submarket. A ratio larger than 1 indicates that the nominator category has a higher likelihood to be true than denominator category being true, given the change of independent variable. Z-statistics is shown in brackets, and *** p<0.01, ** p<0.05, * p<0.1.

